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THE AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

1913

EDITED BY

FRANCIS G. WICKWARE, B. A., B. Sc.

UNDER DIRECTION OF A SUPERVISORY BOARD
REPRESENTING NATIONAL LEARNED SOCIETIES

NEW YORK AND LONDON
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PREFACE

With the publication of this volume, covering the events and progress of 1913, the AMERICAN YEAR BOOK reaches its fourth issue. In general, the YEAR BOOK for 1913 follows the lines of the issue for 1912. The number and order of the departments are unchanged, but the subdivision of topics has been carefully revised as experience has demonstrated the possibility of improvement for the convenience of the user. New titles have been added to the list of permanent topics, and a few topics have been combined in a new arrangement. The scope of the work remains as defined in the preface to the first issue:

"The AMERICAN YEAR BOOK is intended for the needs of writers and searchers of every kind. Because of its inclusion of scientific subjects, it has been necessary to limit the political and statistical material which is the staple of many annual handbooks; the book does not aim to treat everything that could be useful, but throughout to select from the enormous mass of details those things which, in the judgment of experts in each field, are most significant, most permanent in value, most likely to answer the searchers' questions."

"The AMERICAN YEAR BOOK does not aim to be a rival of other annual publications, either foreign or domestic. Details as to elections, the *personnel* of state and municipal governments, political personalities, societies, and educational, literary, and scientific institutions have deliberately been reduced, in order to make room for material of a kind not found in most of the annuals. The AMERICAN YEAR BOOK appeals first of all to students in all fields, who wish a record of progress, not only in their own, but in other departments of human endeavor. It is intended, also, as a handbook for busy men, editors, contributors, professional men, teachers, scientific workers, engineers, practical and business men, who wish to verify or confirm points that arise in their minds; and to serve as a handy body of reference material settling questions of fact. Throughout the work the object has been to make the volume convenient for the user; hence the YEAR BOOK is arranged on a plan entirely unique in publications of this general character. It is intended to make reference easier by subdividing material into departments, by putting cognate subjects into close association, and by liberal cross references, making it easy to turn at once to the discussions relating to any subject. A full and carefully analyzed index is also provided in order to open up all remote connections and relations of a topic. This arrangement by groups of affiliated subjects, instead of haphazard or alpha-

betical succession of topics, is more convenient, and at the same time more scientific."

The Supervisory Board of representatives of national learned and scientific societies, officially known as the American Year Book Corporation, have continued actively to assist in the preparation of the YEAR BOOK. The members of this Board, who originally projected the work, remain individually responsible for the scope and content of the reviews of their respective fields; several are themselves contributors; many have coöperated with the Editor in securing contributors; and all have assisted the Editor with criticism and counsel. The Supervisory Board has now thirty-nine members, a complete list of whom will be found on a subsequent page, representing forty-three societies. Only one change in *personnel* has occurred during the year, the withdrawal of Prof. John Bassett Moore as representative of the American Society of International Law on his appointment as Counsellor to the Department of State, and the appointment in his place of Prof. George Grafton Wilson of Harvard University.

One hundred and twenty-eight contributors have coöperated in the preparation of this issue. All are experts in their special fields, and the complete list printed on a subsequent page contains many names of eminence.

To Americans the most important part of the year's record is, of course, that dealing with the inauguration of the Democratic Administration and the remarkable legislative achievements of the first session of the Sixty-third Congress. Internationally the year's record is of unusual interest, and the external relations of the United States, marked by events of prime importance, are comprehensively reviewed. American events and progress in politics, economics, sociology, the sciences, the arts, and the humanities, are surveyed with fullness and authority, and are placed in their proper perspective by a background of the significant events in foreign countries.

The acknowledgments of the Editor are due, not only to the contributors and members of the Supervisory Board, but also to the many public officials, Federal, state, and municipal, who have courteously responded to requests for statistical data, and to the readers who have offered disinterested criticism of previous issues. The Editor welcomes criticism and suggestions from any source on the selection of material and method of treatment, or on the more formal side of typography, make-up, and conveniences for users.

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THE AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

I. AMERICAN HISTORY

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American history has been made in 1913 more rapidly than in any other year since the beginning of the century. After sixteen years of Republican rule, a Democratic Administration has come into power, inspired with new ideals and dominated by the earnest and powerful personality of President Wilson. In ten months of office the new Administration has effected a real and extensive downward revision of the tariff, has introduced the new principle of the income tax into Federal finance, and has placed upon the statute books a new banking and currency law. At the same time, the new Administration has foreshadowed radical changes in our policy toward the Philippines, and has established new and definite principles of action in dealings with foreign states. Out of these new principles has been developed a definite Latin-American policy, which has been put to a severe test in the relations between the United States and Mexico.

In the following pages is outlined the legislative and administrative history of the year—the legislative record of the final session of the Sixty-second Congress and the remarkable programme of the first session of the Sixty-third, and the policies and achievements of the Republican and Democratic Administrations. The political and party history of the year is treated in a subsequent article (see *Politics and Parties, infra*), while the international relations of the United States are reserved for consideration in a separate department (see III, *International Relations*).

THE SIXTY-SECOND CONGRESS

The Third Session.—The third and final session of the Sixty-second Congress opened on Dec. 2, 1912, and ended at noon on March 4. Its work was principally of routine. Most of the subjects of general interest which came before it were reserved for the determination of the new Democratic Administration. It acted, however, on a number of legislative measures and pursued other activities of importance, the courses of which are traced in the following pages. (See also V, *The National Administration.*)

Physical Valuation of Railroads.—The most important legislation of the session affecting commerce amended the Interstate Commerce Act of Feb. 4, 1887, by the addition of a new section (19a) "providing for a valuation of the several classes of property of carriers subject thereto, and securing information concerning their stock, bonds, and other securities." A bill embodying this amendment (H. R. 22593, 62d Cong., 2d sess.), introduced by Mr. Adamson (Ga.), was passed by the House of Representatives on Dec. 5, 1912. In the Senate Committee on Interstate Commerce the measure was redrafted by Senator La Follette (Wis.), and in its amended form was passed by the Sen-

ate on Feb. 24. The House concurred in the Senate amendments on the 27th and on March 1 the bill was approved by President Taft (Public Act No. 400).

The act directs the Interstate Commerce Commission to investigate, ascertain, and report the value of every piece of property owned or used by all common carriers subject to the Interstate Commerce Act, which include railroad, sleeping car, express, steamboat, pipe-line, telegraph, and telephone companies. As to every piece of property, the report is to show in detail "the original cost to date, the cost of reproduction new, and the cost of reproduction less depreciation." It is to "state in detail and separately from all improvements the original cost of all lands, rights of way, and terminals owned or used for the purposes of a common carrier, and ascertained as of the time of dedication to public use, and the present value of the same." In ascertaining original cost to date the Commission is instructed to

investigate and report upon the history and organization of the present and of any previous corporation operating such property; upon any increases or decreases of stock, bonds, or other securities in any reorganization; upon moneys received by any such corporation by reason of any issues of stocks, bonds, or other securities; upon the syndicating, banking, and other financial arrangements under which such issues were made and the expense thereof; and upon the net and gross earnings of such corporations; and shall also ascertain and report in such detail as may be determined by the Commission upon the expenditure of all moneys and the purposes for which the same were expended.

All final valuations by the Commission are to be accepted as *prima facie* evidence of the value of the property in all proceedings under the Interstate Commerce Act and in all judicial proceedings brought to enjoin, set aside, annul, or suspend any order of the Interstate Commerce Commission. (See also XXII, *Railroads.*)

The Department of Labor.—The establishment of a Department of Labor added a tenth executive department to the Federal Government and a tenth member to the President's Cabinet. The bill creating the new department (H. R. 22913, 62d Cong., 2d sess.), introduced by Mr. Sulzer (N. Y.), was passed by the Hou of Representatives on July 17, 191 In an amended form it was passed the Senate on Feb. 26, and the fo lowing day the House agreed to t Senate amendments. President Ta disapproved strongly of certain fe tures of the bill but signed it o March 4 (Public Act No. 426), deference, it was said, to the wis of the President-elect. His objectio to the measure were expressed in memorandum submitted with t signed bill:

I sign this bill with considerable hes tation, not because I dissent from t purpose of Congress to create a Depar ment of Labor, but because I think th nine departments are enough for t proper administration of the Governme and because I think that no new depar ment ought to be created without a r organization of all departments in t Government and a redistribution of t bureaus between them. The distributio of bureaus between the existing depar ments is far from being economical logical, and if there is one thing that needed in the present situation it is reorganization of our Government business principles and with a view economy in the administration of t regular Governmental machinery. I fo bear, however, to veto this bill, becau my motive in doing so would be mi understood.

The Act defined the purpose of t Department of Labor "to foster, pr mote, and develop the welfare of t wage earners of the United States, improve their working conditions, a to advance their opportunities f profitable employment." At its hea was established the Secretary of L bor, appointed by the President, an annual salary of $12,000, with Assistant Secretary, also appointed the President, at a salary of $5,00 To the jurisdiction of the new depar ment the Act transferred from t Department of Commerce and Labo thereafter to be known as the D partment of Commerce, the Children Bureau, the Bureau of Labor, and t Bureau of Immigration and Natural zation. The Bureau of Immigrati and Naturalization was divided in two bureaus, the Bureau of Immigr tion and the Bureau of Naturaliz tion. The name of the Bureau Labor was changed to Bureau Labor Statistics; all the powers a duties formerly possessed by the Co missioners of Labor were conferred the Commissioner of Labor Statisti

with the additional duty of collecting and reporting, at least once each year, "full and complete statistics of the conditions of labor and the products and distribution of the products of the same." (See also V, *The National Administration.*)

The Immigration Bill.—As reported in the last issue of the YEAR BOOK (p. 371) a bill establishing a literacy test for aliens seeking admission to the United States and making other important changes in the immigration law (S. 3175, 62d Cong., 2d sess.), introduced by Senator Dillingham (Vt.), was passed by the Senate on April 19, 1912. The House Committee on Immigration and Naturalization tabled the Dillingham bill on May 21, 1912, but on June 4, 1912, voted to report it in an amended form, by striking out everything after the enacting clause and substituting therefor a less stringent measure introduced in the House by Mr. Burnett (Ala.) and favorably reported on April 16, 1912. The Burnett bill was passed by the House on Dec. 18, 1912, by a vote of 179 to 52, but on the following day the Senate refused to concur in the House amendments, and the bill was thrice sent to conference before it was reported in a form acceptable to the Senate. The bill, finally approved by the House on Jan. 30 and by the Senate on Feb. 1, was a comprehensive codification and revision of the existing law regulating "the immigration of aliens to and the residence of aliens in the United States." It proposed, among the changes in the existing law, an increase of the head tax from $4 to $5; exclusion of aliens not eligible for naturalization; extension of the powers of the Secretary of Commerce and Labor to admit skilled labor under the contract labor law; heavier penalties for steamship companies advertising for immigrants; provision for the deportation of aliens who become criminals within three years of entry; establishment of interior immigrant stations; and provision of experts in insanity in large ports of entry. In one of its 38 sections was incorporated the original Burnett bill, providing for the exclusion from the United States, in addition to other specified classes, of:

> All aliens over 16 years of age, physically capable of reading, who cannot read the English language or some other language or dialect, including Hebrew or Yiddish: *Provided,* that any admissible alien or any alien heretofore or hereafter legally admitted or any citizen of the United States may bring in or send for his father or grandfather over 55 years of age, his wife, his mother, his grandmother, or his unmarried or widowed daughter, if otherwise admissible, whether such relative can read or not; and such relatives shall be permitted to enter.

President Taft vetoed the bill on Feb. 14, after a hearing in which the principle of the literacy test was chiefly supported by organized labor. In the veto message Mr. Taft said:

> I do this with great reluctance. The bill contains many valuable amendments to the present immigration law, which will insure greater certainty in excluding undesirable immigrants. The bill received strong support in both Houses, and was recommended by an able commission after an extended investigation and carefully drawn conclusions. But I cannot make up my mind to sign a bill which in its chief provision violates a principle which ought in my opinion to be upheld in dealing with our immigration.

The bill was repassed over the President's veto by the Senate on Feb. 18 by a vote of 72 to 18, but an attempt in the House the following day to override the veto was defeated. The vote in the House was 213 to 114, 138 Democrats and 75 Republicans voting to override the veto and equal numbers of the two parties voting to sustain the action of the President. In practically identical form the bill has been introduced in the Sixty-third Congress.

Intoxicating Liquors in Interstate Commerce.—Another bill vetoed by President Taft but repassed over his veto, was the Kenyon-Webb bill, "divesting intoxicating liquors of their interstate character in certain cases" (*A. Y. B.*, 1912, p. 396). The object of this measure was to assist the states in the enforcement of prohibition laws by prohibiting the shipment or transportation into any state, territory, or district of the United States from any other state, territory, or district, or from any foreign country, of intoxicating liquors of any kind intended to be received, possessed, or sold, either in the original packages or otherwise, in violation of any law of such state, territory, or district. A bill (H. R. 17593, 62d Cong., 2d

sess.), introduced by Mr. Webb (N. C.) and passed by the House of Representatives on Feb. 8, was substituted by the Senate in a similar measure (S. 4043), introduced by Mr. Kenyon (Iowa) and passed on Feb. 10; the following day the new bill was passed by the House. On the 28th President Taft vetoed the bill on the ground that it was

a violation of the interstate-commerce clause of the Constitution, in that it is in substance and effect a delegation by Congress to the state of the power of regulating interstate commerce in liquors which is vested exclusively in Congress.

The veto was overridden, however, by the Senate on the 28th by a vote of 63 to 21, and by the House on March 1 by a vote of 246 to 95 (Public Act No. 398). (See also XVI, *The Liquor Problem.*)

Involuntary Servitude of Seamen.—President Taft exercised a "pocket" veto on a "seamen's" bill (H. R. 23673, 62d Cong., 2d sess.) passed by the House in August, 1912, and by the Senate on March 2, with amendments to which the House agreed the following day. It amended extensively the sections of the Revised Statutes dealing with the hours of labor, payment, lodging, and punishment of seamen in the merchant marine and with the manning of ships, abolished criminal liability for desertion, and directed the President to give notice to the Governments concerned of the abrogation of all articles in treaties and conventions of the United States providing for the arrest and imprisonment of deserters from American vessels in foreign countries or from foreign vessels in American ports. President Taft declined to sign the bill because of its conflict with the treaty obligations of the United States. A more radical measure along similar lines was passed by the Senate during the first session of the Sixty-third Congress (see *The Sixty-third Congress, infra*).

Appropriation Acts.—Two of the regular appropriation bills for the fiscal year 1914 failed of enactment in the Sixty-second Congress. A conference report on the Indian appropriation bill, carrying appropriations of $10,079,205, was not acted upon by either Senate or House. The Sundry Civil Appropriation bill, carrying appropriations of $116,718,386.91, was vetoed by President Taft on March 4 because of a provision, originating in the House of Representatives on Feb. 20, that no part of an appropriation of $300,000 for the enforcement of the anti-trust law should be expended in the prosecution of labor organizations for entering into any combination or agreement for the purpose of increasing wages, shortening hours, or bettering the condition of labor, or of associations of farmers formed for the purpose of maintaining prices for their products. This provision was characterized by Mr. Taft as "class legislation of the most vicious sort." In the last hour of the Congress the bill was repassed by the House by a vote of 270 to 50, but a filibuster prevented action in the Senate. A bill containing the provision rejected by President Taft was later approved by President Wilson (see *infra, The Sixty-third Congress*).

A statement agreed upon at the close of the session by leaders of both parties showed that the appropriations of the third session of the Sixty-second Congress, including the Indian and Sundry Civil Appropriation bills, amounted to $1,098,647,960.21. In addition, contracts were authorized, subject to future appropriations, amounting to $76,956,174. The appropriations of the preceding session amounted to $1,019,412,710.91, and the additional contracts authorized to $26,423,900.

No provision was made in any appropriation act for the maintenance of the President's Commission on Economy and Efficiency, in spite of a special message from President Taft urging an appropriation of $250,000 for this purpose; the Commission accordingly ceased to exist at the end of the fiscal year. The Commerce Court eked out a precarious existence to the end of the year. Provision for its maintenance until March 4, 1913, was made in the Legislative, Executive, and Judicial Appropriation Act for the fiscal year 1913. A clause in the General Deficiency Act, secured by agreement of the conferees of the Senate and House in dropping a similar Senate amendment from the new Legislative, Executive, and Judicial bill, extended the life of the Court

to the end of the fiscal year. It was finally abolished by the Sixty-third Congress (see *The Sixty-third Congress, infra*).

The Public Buildings Bill.—An omnibus Public Buildings bill (H. R. 28766, 62d Cong., 3d sess.), generally considered a piece of "pork barrel" legislation, was enacted in the closing days of the session. The bill as introduced in the House of Representatives by Mr. Burnett (Ala.) from the Committee on Public Buildings and Grounds authorized expenditures of slightly over $25,600,000. In this form it was passed by the House on Feb. 17. The Senate, however, added amendments authorizing additional expenditures of about $19,000,000, and the bill was sent to conference three times before the adoption by both houses on March 3 of a final report authorizing contracts amounting to a total of $39,892,850, exclusive of authorizations without contracts amounting to $5,116,000. President Taft disapproved strongly of certain items authorizing the construction of public buildings in towns too small to justify them, but signed the bill on March 4 because of its authorization of important improvements and additional Government buildings in Washington (Public Act No. 432).

The Lincoln Memorial.—Congress approved in January the report of the Lincoln Memorial Commission submitted on Dec. 4, 1912, and appropriated $2,000,000 for the erection of a memorial structure in Washington of the design and on the site recommended by the Commission with the concurrence of the Commission of Fine Arts. The Commission reported unanimously in favor of a memorial in the form of a Grecian temple, the design of Henry Bacon of New York, to be erected in the new Potomac Park. In the House of Representatives on Jan. 29 a final fight for the rejection of the report was made by the advocates of a memorial to Lincoln of utilitarian rather than of purely æsthetic value, in the form of a national memorial highway between Washington and the battlefield of Gettysburg, a memorial bridge over the Potomac River, or a memorial auditorium hall in Washington. Only the projectors of the Lincoln Highway, however, were in opposition on the final vote, which put an end to a bitter struggle of nearly a decade.

Limitation of the Presidential Term.—A resolution to amend the Federal Constitution to limit the tenure of office of the President and Vice-President of the United States to one term of six years (S. J. Res. 78, 62d Cong., 2d sess.) was passed by the Senate on Feb. 1. This resolution was part of the unfinished business of the second session of the Sixty-second Congress; it was originally introduced in the Senate by Senator Works (Cal.) on Feb. 13, 1912, and favorably reported by the Committee on the Judiciary on May 20, 1912, while a similar resolution, offered in the House of Representatives by Mr. Clayton (Ala.), was favorably reported by the House Judiciary Committee on June 4, 1912. As passed by the Senate, amended from its original form to make it unmistakably retroactive, the resolution proposed to substitute for Art. II, Sec. 1, ¶ 1, the following:

> The executive power shall be vested in a President of the United States of America. The term of the office of President shall be six years; and no person who has held the office by election, or discharged its powers or duties, or acted as President under the Constitution and laws made in pursuance thereof shall be eligible to hold again the office by election.

The vote in the Senate was 47 to 23, 28 Democrats and 19 Republicans voting for the resolution, and one Democrat and 22 Republicans, including the three "Progressives," against it. In the House Committee on the Judiciary, to which the resolution was referred on Feb. 3, it was offered on Feb. 10, with an added clause providing that the amendment should not be effective until March 4, 1921, but the next day action on the new resolution was postponed indefinitely. It has been reintroduced in the Sixty-third Congress but no action has been taken.

The Sixteenth Amendment.—After being before the states for nearly four years, the Sixteenth Amendment to the Federal Constitution, empowering Congress to levy a tax on incomes, received its thirty-sixth ratification on Feb. 3, and became part of the

Constitution by formal proclamation of the Secretary of State Knox on Feb. 25. The text of the amendment is as follows:

ARTICLE XVI. The Congress shall have power to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several states, and without regard to any census or enumeration.

The amendment was ratified altogether by 42 states, as follows:

1909

Alabama, Aug. 17

1910

Georgia, Aug. 3	Mississippi, Mar. 7
Illinois, Mar. 1	Oklahoma, Mar. 14
Kentucky, Feb. 8-9	S. Carolina, Feb. 19
Maryland, April 8	Texas, Aug. 17

1911

Arkansas, Apr. 22	Nebraska, Feb. 11
California, Jan. 31	Nevada, Feb. 8
Colorado, Feb. 20	New York, July 12
Idaho, Jan. 20	N. Carolina, Feb. 11
Indiana, Feb. 6	North Dakota, Feb. 21
Iowa, Feb. 27	Ohio, Jan. 19
Kansas, Feb. 18	Oregon, Jan. 23
Maine, Mar. 31	Tennessee, April 7
Michigan, Feb. 23	Washington, Jan. 26
Missouri, Mar. 16	Wisconsin, May 26
Montana, Jan. 31	

1912

Arizona, April 9	Minnesota, June 11
Louisiana, July 1	South Dakota, Feb. 3

1913

Delaware, Feb. 3	Vermont, Feb. 19
Massa'tts, Mar. 4.	New Mexico, Feb. 5
N. Hampshire, Mar. 14	W. Virginia, Jan. 31
New Jersey, Feb. 5	Wyoming, Feb. 3

The Money Trust Investigation.—Hearings were concluded on Jan. 24 in the inquiry into banking and currency conditions, or, more properly, the search for an alleged money trust, conducted during the greater part of the year 1912 (*A. Y. B.*, 1912, pp. 50, 347-8) by a sub-committee of the Committee on Banking and Currency of the House of Representatives under the chairmanship of Mr. Pujo (La.). The committee accumulated a mass of testimony on stock-exchange and clearing-house methods, the marketing of securities, and the conduct of large financial institutions in New York and other cities, but there was no testimony from any source to support the allegation of an organized trust in money and credits.

The findings of the committee were submitted to the House of Representatives on Feb. 28 in three separate reports. The majority report, drafted by Mr. Untermyer and signed by Mr. Pujo and the other six Democratic members of the committee, found that, while the existence of "a combination or arrangement created and existing pursuant to a definite agreement between designated persons with the avowed and accomplished object of concentrating unto themselves the control of money and credit" had not been established,

there is an established and well-defined identity and community of interest between a few leaders of finance; created and held together through stock ownership, interlocking directorates, partnership and joint-account transactions, and other forms of domination over banks, trust companies, railroads, and public service and industrial corporations, which has resulted in great and rapidly growing concentration of the control of money and credit in the hands of these few men.

The "inner group" in this combination, the report held, comprises J. P. Morgan & Co., "the recognized leaders," George F. Baker and James P. Stillman, in their individual capacities and in their joint administration and control of six banking institutions with total known resources of $1,300,000,000. The principal minority report, signed by three Republican members of the committee, granted that the testimony had "disclosed a dangerous concentration of credit in New York City and to some extent in Boston and Chicago," but denied that it had "disclosed the existence of any so-called 'money trust' in this country." The third report, filed individually by Henry McMorran (Rep., Mich.), held

that a sinister light has been thrown over many banking practices which was not justified by the facts, that no effort has been made to show the reasonable and commendable explanation of these practices, and that in many cases an impression has been given to the country as to the character and motives of leading bankers which is altogether unfair.

With the majority report were submitted drafts of two bills embodying the legislative recommendations of the Democratic members of the committee. They proposed, by one of these bills, to prohibit tne use of the mails or of interstate telephone or telegraph lines to any stock exchange not in-

corporated under the laws of the state in which it is located and not enforcing certain regulations as to the listing of securities, dealing on margin, wash sales, etc. Clearing-house associations of which national banks are members, the report recommended, should also be required to incorporate under the laws of their states, and should be prohibited from excluding solvent banks from membership because of their small size and from prescribing rates of interest, discount, or exchange. Finally, for the prevention of concentration of control of money and credit, the report recommended many amendments to the national banking laws, prohibiting interlocking directorates, voting trusts, etc., restricting consolidations of banks, prescribing cumulative voting in boards of directors, and regulating investments, loans, and transactions in corporation securities.

The Campaign Fund Investigation.—The scope of the inquiry into campaign funds (*A. Y. B.*, 1912, p. 48) conducted by a special committee of the Senate under the chairmanship of Senator Clapp (Minn.) by authority of a Senate resolution of Aug. 26, 1912, was extended by resolution of the Senate on Jan. 23 to cover the source and disbursement of the funds of the Presidential and Congressional campaigns of 1912. The committee failed to agree upon a report for presentation to the Sixty-second Congress.

The Anti-Trust Law.—The Senate Committee on Interstate Commerce reported on Feb. 27 the results of an inquiry undertaken pursuant to a resolution (S. Res. 98, 62d Cong., 1st sess.) adopted by the Senate on July 26, 1911, to determine "what changes are necessary or desirable in the laws of the United States relating to the creation and control of corporations engaged in interstate commerce." The occasion of the investigation was the new "standard of reason" in the interpretation of the Sherman Act established by the Supreme Court in the decision in the Standard Oil Co. case (*A. Y. B.*, 1911, pp. 59, 168). The report has a special importance in view of President Wilson's intention to urge additional anti-trust legislation during the current session of Congress (see *The Sixty-Third Congress, infra*). It urged the immediate enactment of amendments to the anti-trust law

> to supply the Court with such legislative tests and standards as will limit the scope of judicial discretion. . . . Congress should, in so far as possible, specifically prescribe certain conditions upon which persons and corporations shall be permitted to engage in commerce among the states and with foreign nations. These conditions should be of a character that will tend to preserve reasonable competition, or substantially competitive conditions, and to compel independence in both organization and conduct. They should be so clear that the business world can understand them and go confidently forward, guided by them. . . . Our legislation should further recite certain known forms of combination and declare them to be unlawful because in restraint of trade. With respect to other forms, we should declare that if restraint is established the burden of proof is upon the persons or corporations involved to show that the restraint is reasonable.

For the better administration and enforcement of the anti-trust law, the report recommended the creation of a trade commission with jurisdiction over all corporations, firms, and individuals engaged in interstate commerce, excepting common carriers, analogous to that of the Interstate Commerce Commission. The Committee submitted without reporting the text of a bill (S. 5485, 62d Cong., 2d sess.) to create an Interstate Trade Commission of three members, appointed by the President for nine years at an annual salary of $10,000, with the powers and duties suggested in the report. The session ended without a report on either this bill or another much more radical measure "to create an Industrial Commission" introduced in the Senate by Mr. Bristow (Kans.) on Jan. 6 (S. 7970, 62d Cong., 3d sess.). Bills embodying many of the features of the report have been introduced in the Sixty-third Congress by Senator La Follette, Mr. Henry, and others, but the Administration has deferred disclosing its attitude beyond the promise of additional anti-trust legislation.

Impeachment of Judge Archbald.—The trial on impeachment of Judge Robert W. Archbald occupied the Senate during the early weeks of the session. After 16 years' service on the bench in the state courts of Penn-

sylvania, the last 13 years as presiding judge of the Forty-fifth Judicial District, Judge Archbald was appointed a U. S. district judge for the Middle District of Pennsylvania on March 29, 1901. On Jan. 31, 1911, he was elevated to the bench of the U. S. Circuit Court and designated to serve as one of the judges of the U. S. Commerce Court. An inquiry into his official conduct, inspired by complaints presented to the Interstate Commerce Commission early in the year, was directed by resolution of the House of Representatives of May 4, 1912, and on July 11, 1912, by a vote of 220 to 1, the House resolved upon his impeachment on 13 charges reported by unanimous vote of the Committee on the Judiciary, which were laid before the Senate on July 15, 1912 (*A. Y. B.*, 1912, p. 47). The trial was begun in the Senate, sitting as a Court of Impeachment, on Dec. 3, 1912, and on Jan. 13 Judge Archbald was found guilty on five of the charges preferred against him. The articles of impeachment, and the result of the votes thereon, are given below; articles 7 to 12 refer to acts prior to the designation of Judge Archbald as one of the judges of the Commerce Court:

1. That he influenced officers of the Erie Railroad, then a litigant in his court, to grant him a favorable option on a culm dump near Scranton, Pa. Guilty, 68 to 5.

2. That he attempted to effect a settlement of a case pending before the Interstate Commerce Commission on a basis which would have given him a pecuniary return for his services. Not guilty, 46 to 25.

3. That he attempted to influence the Lehigh Valley Railroad, then a litigant before his court, to relinquish rights to a culm dump near Shenandoah, Pa. Guilty, 60 to 11.

4. That he secured private letters and arguments from the attorney for a railway company to sustain an opinion in favor of the company in a case before his court. Guilty, 52 to 20.

5. That he influenced a subsidiary of the Philadelphia & Reading Railroad to grant a lease on a coal property to a third party, from whom he received a note for $500. Guilty, 66 to 6.

6. That he attempted to influence the Lehigh Valley Railroad to purchase certain coal lands near Wilkesbarre, Pa. Not guilty, 24 to 45.

7. That he accepted certain stock from a litigant in his court in whose favor he had effected a settlement of an insurance case. Not guilty, 29 to 36.

8. That he attempted to have a note for $500 discounted by litigants in his court. Not guilty, 22 to 42.

9. That he influenced an attorney practicing in his court to accept this note for discount. Not guilty, 23 tho 39.

10. That he accepted a trip to Europe at the expense of a director in several railroads. Not guilty, 1 to 65.

11. That he accepted from attorneys praticing in his court, for the purpose of this trip, a sum in excess of $500. Not guilty, 11 to 51.

12. That he appointed as jury commissioner for his judicial district the general attorney for the Lehigh Valley Railroad. Not guilty, 19 to 46.

13. That he had sought to obtain credit from and through persons interested in suits in his court; that he had carried on, while a judge, a general business in culm dumps, coal lands, and other coal property for speculation and profit; and that he had improperly influenced railroad officials. Guilty, 42 to 20.

A resolution removing Judge Archbald from office was carried without a dissenting vote; and by a vote of 39 to 35 the Senate imposed the extreme penalty provided by the Constitution, disqualifying him forever "to hold and enjoy any office of honor, trust, or profit under the United States." The impeachment of Judge Archbald was the ninth to come before the Senate of the United States; the third in which the accused was found guilty and removed from office; and the first in which the sentence included disqualification.

The Sixty-second Congress.—The Sixty-second Congress, in the words of the *New York Times*, "was a busy, excited, confused body which undertook much and brought about little." Through the resentment of the country against the Payne-Aldrich tariff of 1909, the Democrats secured a majority of over 60 in the House and reduced to ten the Republican majority in the Senate. In political history the Sixty-second Congress will take an important place as the transition between Republican and Democratic rule, but its record of substantial legislation was comparatively small. It enacted, in addition to the measures of the last session described above, an important amendment to the pure-food law, an eight-hour law covering Government contracts, campaign-publicity laws, a "dollar-a-day" pension act which added an annual charge of about $25,000,000 to the pension account, acts for the admis-

sion of Arizona and New Mexico to statehood, the administration of the Panama Canal and the establishment of a Children's Bureau, and an amendment to the Constitution providing for the direct election of Senators. Its efforts to secure downward revision of the tariff, designed to a certain extent for political effect, were defeated by the vetoes of President Taft. The most spectacular extra-legislative incidents of the two years were the demand for the abrogation of the Russian treaty, the disqualification of Senator Lorimer, and the impeachment of Judge Archbald. The investigations of campaign funds, of the money trust, the shipping trust, and the United States Steel Corporation were more or less sensational, but were adapted to partisan rather than public ends. The Senate ratified a number of treaties of importance, but emasculated the arbitration treaties with Great Britain and France advocated by President Taft. On the whole, the record of the Sixty-second Congress reflects the unrest and uncertainties of an expiring political epoch.

THE END OF REPUBLICAN ADMINISTRATION

Foreign Relations.—On the administrative side the notable incidents of the closing weeks of President Taft's term arose chiefly out of the foreign relations of the United States. The disturbances in Mexico (*A. Y. B.*, 1912, pp. 73-7, 112-3), culminating in the overthrow of the Madero Government, on Feb. 18, and the progress of the controversy with Great Britain over the provision of the Panama Canal Act of Aug. 24, 1912, exempting American coastwise vessels from payment of tolls (*A. Y. B.*, 1912, pp. 82-4, 271) are reviewed in detail elsewhere (see III, *International Relations;* and IV, *Foreign Affairs*). In respect to Mexico the President continued to disregard the clamor of certain American interests for intervention and pursued his policy of patient non-interference. On Jan. 4 Mr. Taft declared his willingness to submit the tolls dispute to arbitration on a clearly defined issue (see *infra*, "President Taft's Speeches"), but his term ended before the question of arbitration was definitely raised. In Congress Senator Root (N. Y.) was the principal spokesman of a widespread and powerful sentiment of disapproval of the attitude of the Administration on this question. He introduced a bill (S. 8114, 62d Cong., 3d sess.) on Jan. 14 for the repeal of the discriminatory clause, but the Senate declined to consider a retreat from the position taken by Secretary of State Knox in his reply to the British protest. Senator Root's bill was tabled by the Committee on Interoceanic Canals on Feb. 17 by a vote of 10 to 5.

The President and Congress.—Of the relations between President Taft and Congress the most striking feature was the coalition of the Progressive Republicans with the Democratic minority in the Senate to defeat confirmation of some 1,500 executive nominations. Late in January the radicals united with the regular Republicans in a decision to force the Democrats to consent to the confirmation of the hundreds of nominations then pending, but an attempt to carry out the plan was defeated by the defection of three progressive Senators, La Follette (Wis.), Bristow (Kans.), and Poindexter (Wash.), which practically destroyed the small Republican majority. On March 1 the Democrats consented to the confirmation of a few important civil appointments along with several hundred promotions in the Army and Navy, but the bulk of President Taft's nominations to civil office were reserved for the approval of Mr. Wilson.

The President's Messages.—President Taft's last annual message to Congress was submitted in three sections during December, 1912 (*A. Y. B.*, 1912, p. 49). The first, dated Dec. 3, dealt exhaustively with the foreign relations of the United States and the results of the foreign policy of his administration. The second section, dated Dec. 6, dealing with fiscal, judicial, military, and insular affairs, urged consideration of the

plan of currency reform recommended by the National Monetary Commission; enactment of the militia pay bill and the bill providing for raising a volunteer force in time of war; admission of the Porto Ricans to American citizenship; denial of independence to the Philippines; provision for three battleships in the Naval appropriation act; and enactment of the Workmen's Compensation and Employers' Liability bill. The final section, dated Dec. 19, dealt with the work of the executive departments. The communications of the President on special topics included messages of Jan. 8, on the work of the Commission on Economy and Efficiency, urging an appropriation of $250,000 to continue its work; and of Feb. 25, urging an appropriation of $250,000 for the first payment to the Republic of Panama under the terms of the treaty of Nov. 18, 1903. An elaborate message on the need of a national budget (S. Doc. 1113) was submitted on Feb. 26, and a report on the reorganization of the customs service on the last day of the session.

Budget Reform.—The President's budget message accompanied a statement of financial conditions and results submitted to Congress as an account of stewardship. It was a final effort to secure a reform in financial administration recommended in 1912 by the Commission on Economy and Efficiency and urged unsuccessfully upon Congress by Mr. Taft and the heads of executive departments (*A. Y. B.*, 1912, p. 331). To carry out the budget plan and to reduce the deficit and fixed charges against the Government, Mr. Taft recommended the creation of a sinking-fund commission, and the enactment of legislation to retire the national debt of $1,160,000,000 at the end of 20 years by the annual appropriation of $45,000,000, about $15,000,000 less than the amount now required by law, in three per cent. Government bonds. He proposed, further, that a definite theory should be adopted for future internal improvements, such as the erection of new Government buildings, which should be financed by the issue of 20-year bonds payable out of an adequate sinking fund. For the preparation of the budget, the President urged the creation of an executive bureau of administrative control, a central accounting, auditing, and reporting organization, consolidating the six auditors' offices, the office of the Comptroller of the Treasury, and the other central accounting offices of the Government; and he recommended in conclusion the organization of a budget committee of Congress which should act as a final clearing house through which all the recommendations of committees having to do with revenues and expenditures should pass before incorporation in appropriation bills.

Reorganization of the Customs Service.—The Sundry Civil Appropriation act of Aug. 24, 1912, authorized the President to reorganize the customs service to bring the total annual cost within the sum of $10,150,000. Acting under this authority President Taft ordered on March 3 a drastic reorganization of the customs service to go into effect July 1, 1913, for the fiscal year 1914 and until otherwise provided by Congress. The number of collectors of customs was reduced from 152 to 49, many ports of entry and sub-ports were abandoned, salaries were placed on a fixed basis, and certain fees collected for the personal profit of collectors were abolished. The country was redistricted with the twofold object of bringing the distribution of the customs districts to an economical working basis and of adjusting the customs management to changes which have taken place in points of commerce. The new districts generally follow state lines, but in some cases states are divided into two or more districts, while in others two states are combined into one district.

President Taft's Speeches.—During the closing weeks of his administration Mr. Taft added to his long series of public addresses on national problems a number of speeches which were listened to with peculiar interest. Before the International Peace Forum in New York on Jan. 4, the President reaffirmed his belief that the clause of the Panama Canal Act exempting American coastwise shipping using the canal from payment of tolls violated none of the treaty rights of Great Britain, but declared his will-

ingness, should diplomatic negotiations fail, to submit the question to the arbitration of an impartial tribunal, composed, as he explained later, of equal numbers of representatives of the two countries. In the same address and on two subsequent occasions, at the B'nai B'rith celebration in New York on Jan. 19 and before the American Peace and Arbitration League in New York on Feb. 22, Mr. Taft discussed the fate of his arbitration treaties with Great Britain and France (*A. Y. B.*, 1911, pp. 93-6; 1912, p. 101). The vote of the Senate in striking out the provision for joint commissions of inquiry on the arbitrability of differences had established, he said,

> a proposition that the Senate of the United States may not consent with the President of the United States to a treaty that shall bind the United States to arbitrate any general class of questions that may arise in the future, but there must always be a condition that the Senate may subsequently, when the facts arise, determine whether in its discretion the United States ought to arbitrate the issue.

"This," he said, "relegates the United States to the rear rank of those nations which are to help the cause of universal peace."

The introduction in Congress by Mr. Jones (Va.) on Jan. 14 of a bill to grant independence to the Philippine Islands within eight years (H. R. 28026, 62d Cong., 3d sess.) inspired two speeches on the Philippine question, before the Ohio Society of New York on Jan. 18 and the Ohio Society of Washington on Jan. 29. In both President Taft urged Mr. Wilson to hold the Philippines; they should not be separated from the United States, he said, within two or three generations, and an immediate grant of independence to a people not ready for self-government, now secure and prosperous under the protection of the United States, could only result in humiliation and confusion. This view Mr. Taft has reiterated on many occasions during the closing weeks of the year in speeches dealing with the radical changes introduced in the Philippine policy by President Wilson (see *The Democratic Administration, infra*).

President Taft's final message to the Republican party was delivered in New York on Jan. 4 before the Union League Club of New York and Philadelphia and the Republican Clubs of New York and Massachusetts. A candid review of the record of his administration and the causes of the overwhelming defeat of 1912 introduced a forecast of the political future of the party, which is quoted at length on another page (see *Politics and Parties, infra*).

President Taft's Administration.—Mr. Taft was elected to the Presidency by a party in which the schism between conservatism and radicalism was already pronounced. In the East the old-time leaders and principles maintained their ascendency over the rank and file of the Republican party, but in the West they were superseded by new ideals and aspirations. Mr. Taft cast in his fortunes with the older men. The Republican party was pledged to a downward revision of the tariff, which had been in abeyance as a political issue since McKinley's administration. Mr. Taft sealed the doom of orthodox Republicanism by his approval of the Payne-Aldrich tariff of 1909. In the Congressional elections of 1910 the Democrats secured a large majority in the House of Representatives and proceeded, with the aid of the progressives in the Senate, to enact a real downward revision of the tariff. Mr. Taft vetoed all the Democratic bills, on the ground that they failed to take account of the basis for scientific reduction of rates available in the reports of the Tariff Board created by the Payne-Aldrich Act, and his own plan for reducing the cost of living was defeated by Canada's repudiation of the reciprocity treaty. On the other hand, the activity of his Attorney-General in the enforcement of the anti-trust law alienated the business interests whom he was accused of serving. Thus, Mr. Taft lost the support of both wings of the Republican party and went down to disastrous defeat in 1912.

As a party leader Mr. Taft failed to discern the inevitable triumph of the progressive wing, and his political ineptitude led him into spectacular mistakes. Partly through his own negligence, partly through the perfidy and abuse of his enemies, his blunders were

magnified and the substantial achievements of his administration belittled. In truly progressive legislation the record of his term included acts to abolish the white-slave traffic; to secure publicity of campaign contributions; to establish a Children's Bureau, a Bureau of Mines, and a Department of Labor; to prohibit the use of poisonous phosphorus in match manufacture; to promote safety on railways and steamships; to increase the efficiency of the Army and Navy; to establish postal savings banks and the parcel post; to admit Arizona and New Mexico to statehood; to establish a legislature in Alaska; to limit hours of labor on Government work to eight hours a day; to provide for the administration of the Panama Canal; and to amend the Constitution to provide for the establishment of an income tax and for the election of Senators by direct vote of the people. Under Mr. Taft's direction the institution of nearly 70 cases under the anti-trust law and its enforcement in nearly 30 convictions gave a new force and intent to the Sherman Act. Mr. Taft introduced economy and efficiency into the conduct of the executive departments and converted a deficit of $58,000,000 into an annual surplus of $50,000,000. He introduced the merit system into the diplomatic service and reorganized completely the Department of State, directing the resources of the Department to the promotion of the country's foreign trade. In the conduct of foreign affairs Mr. Taft secured the settlement of the North Atlantic fisheries dispute, effected a reciprocity arrangement with Canada, interposed successfully to prevent more than one war between Latin-American republics and to compose internal conflicts, promoted the cause of arbitration and universal peace by the conclusion of a number of general arbitration treaties, and preserved the prestige of the United States among world powers by the careful cultivation of international friendships. After his defeat the New York *World*, a leading Democratic newspaper, thus appraised the record of his administration:

> As President Mr. Taft will leave a record of many triumphs and a single conspicuous and fatal blunder. He has been a constitutional magistrate, governing by law and not by caprice. He has given us the greatest Supreme Court since the days of Marshall and Story. He was the first President to enforce the criminal clauses of the Sherman Act. He has powerfully supported the cause of arbitration. He has worked for reciprocity. He has suppressed jingoism. He has promoted civil-service reform. He has had regard for economy.

Professor Taft.—The Corporation of Yale University on Jan. 20 appointed Mr. Taft to the Kent chair of law, and provided for the increase of the annual income of $305 of the Kent Foundation to $5,000, the maximum salary of professors of the first grade. Mr. Taft took up his residence in New Haven on April 1, and on May 3 he began a special course of lectures on contemporary questions of government in the United States, including free trade, the primary system, the income tax, the referendum, and the recall. On Sept. 3 Mr. Taft was elected president of the American Bar Association. He began his duties as Kent Professor of Law in October.

THE DEMOCRATIC ADMINISTRATION

The Electoral Vote.—The casting of the electoral votes in the several states on Jan. 13, whereby Woodrow Wilson and Thomas R. Marshall were formally elected President and Vice-President of the United States, was observed with somewhat greater interest than usually attends the meeting of the electoral colleges. It was occasioned by the failure of the Republican National Committee to designate a substitute for James S. Sherman, the Republican nominee for Vice-President, who died Oct. 30, 1912. The freedom of choice thus left to the Republican electors of Utah and Vermont produced in Herbert S. Hadley, then Governor of Missouri, and Nicholas Murray Butler, President of Columbia University, the candidates of the West and of the East for the vacant places on the Republican ticket. The final selection of Dr. Butler for the honor by the electors of Utah was delayed until the meeting of the Electoral College.

The ceremony of canvassing the electoral vote in joint session of the

Senate and House of Representatives on Feb. 12 concluded the formalities of the Presidential election.

Mr. Wilson before Inauguration.—Conferences with leaders of the Democratic party occupied the President-elect during the month between his return from Bermuda on Dec. 16, 1912, and the assembly of the New Jersey legislature on Jan. 14. His advisers were chosen exclusively from the progressive or radical wing of the party. The general policy thus indicated, to "pick out progressives and only progressives" for office under his administration, Mr. Wilson announced, in a speech before the leaders of the Democratic party in New Jersey, at Trenton on Jan. 13, as an obligation imposed upon him by the definite choice of the people of the United States. No more definite statement than this, on the personnel of his Cabinet, the programme of the extra session of Congress, or other questions of politics or policy, was obtained from him, even by those whose counsel he sought, before his inauguration.

The public utterances of Mr. Wilson during this period, however, were of a nature to cause some apprehension in the business world. At the annual dinner of the Southern Society of New York on Dec. 17, 1912, he threatened "to build the gibbet as high as Haman's" for anyone who should attempt to discredit the Democratic administration by the creation of an "unnatural" panic. A statement of his views on economic conditions, contributed to the *World's Work* for January under the title, "The New Freedom, a Plea for the Emancipation of the Generous Energies of a People," declared the country to be in the grip of a heartless economic system, which has destroyed the freedom of American industry and enterprise, and in which a few are enabled, to an unprecedented degree, to control business operations and to determine the happiness of great numbers of people; asserted that the laws are inadequate to prevent the strong from crushing the weak; and urged the necessity of undertaking a great work of reconstruction and readjustment, for the purpose of "fitting a new social organization to the happiness and prosperity of the great body of citizens." Mr. Wilson gave the first public intimation of his adherence to the progressive wing of the Democratic party in an address at the celebration of his fifty-sixth birthday at Staunton, Va., Dec. 28, 1912; the Presidency, he declared, "is an office in which a man must put on his war paint." In the administration of the office as trustee of the prosperity of the United States, he invited, in the last and most remarkable of his formal addresses, before the Commercial Club of Chicago, Jan. 11, the counsel of business men; but he warned them that, because of their selfish exploitation of natural resources, their striving for monopoly, and the discrimination in the extension of credit of which the banking system was convicted, the people and the Government of the United States had come to look upon business men with suspicion, and that before he could deal with them, they must purge themselves of selfishness, of greed, and of favoritism, and demonstrate their readiness to merge their individual interests in the common welfare.

Anti-trust Legislation in New Jersey.—On Jan. 14 Mr. Wilson addressed his final message as Governor of New Jersey to the first legislature of his term with a Democratic majority in both houses. The most important sections of the message demanded the reforms in the corporation laws and financial administration of the state promised in the Democratic state platform of 1912, and the aggressive campaign for the redemption of party pledges in which the Governor engaged during the remainder of his term largely withdrew his attention from Presidential problems.

New Jersey has long borne the title of the "mother of trusts." The corporation laws which earned for her this unenviable distinction, said Mr. Wilson,

> are manifestly inconsistent with the policy of the Federal Government and with the interests of the people in the all important matter of monopoly, to which the attention of the whole nation is now so earnestly directed. The laws of New Jersey as they stand, so far from checking monopoly, actually encourage it. They explicitly permit every corporation formed in New Jersey, for example, to purchase, hold, assign, and dispose of as

it pleases the securities of any and all other corporations of this or any other state, and to exercise at pleasure the full rights of ownership in them, including the right to vote as stockholders. This is nothing less than an explicit license of holding companies. This is the very method of forming vast combinations and creating monopoly, against which the whole country has set its face.

Seven bills, dealing in a comprehensive and drastic manner with trusts, monopolies, and holding companies (see XIII, *The Conduct of Business*), the famous "seven sisters," were introduced in the Senate Jan. 20 and enacted into law, with but slight modification, less than a month later. The Governor directed and assisted in their preparation, expedited their passage by personal exhortation, and signed them on Feb. 19 with the confident prediction that they would "prove a blessing to the whole people."

Mr. Wilson's resignation as Governor of New Jersey, submitted Feb. 25, took effect March 1. He was succeeded automatically by James F. Fielder, President of the Senate. Mr. Fielder resigned on Oct. 27 to prosecute his successful campaign for election as Governor, and Leon R. Taylor became acting Governor for the remainder of the term ending Jan. 19, 1914.

The Inauguration.—The opening of the new Democratic administration on March 4, after 16 years of Republican rule, was surrounded by every auspicious circumstance. Between the outgoing and the incoming administrations, mutual good will excluded any expression of the spirit of partisanship. The inauguration of Woodrow Wilson, favored by pleasant weather, was witnessed by the largest crowd in the history of inaugurals, and the larger audience of the people of the United States applauded his inaugural address as a deeply moving expression of the highest ideals and aspirations for political and social uplift. There was some criticism of its vagueness, and more of the suggestion of industrial and economic revolution in Mr. Wilson's programme of reform; but the general response to its appeal, regardless of partisan differences, was enthusiastic and sincere.

The change from a Republican to a Democratic government, said the President, "means much more than the mere success of a party." In it the nation, having been "refreshed by a new insight" into our national life, seeks to use the Democratic party "to interpret a change in its own plans and point of view." In material wealth, in energy, in moral force, and in our system of government, our national life "contains every great thing and contains it in rich abundance." But much evil has come with the good.

With riches has come inexcusable waste. We have squandered a great part of what we might have used, and have not stopped to conserve the exceeding bounty of nature, without which our genius for enterprise would have been worthless and impotent. . . . We have been proud of our industrial achievements, but we have not hitherto stopped thoughtfully enough to count the human cost, the cost of lives snuffed out, of energies overtaxed and broken, the fearful physical and spiritual cost to the men and women and children upon whom the dead weight and burden of it all has fallen pitilessly the years through. . . . With the great Government went many deep secret things which we too long delayed to look into and scrutinize with candid, fearless eyes. The great Government we loved has too often been made use of for private and selfish purposes, and those who used it had forgotten the people. . . .

Our duty is to cleanse, to reconsider, to restore, to correct the evil without impairing the good, to purify and humanize every process of our common life without weakening or sentimentalizing it. . . . We have made up our minds to square every process of our National life again with the standards we so proudly set up at the beginning and have always carried at our hearts. Our work is a work of restoration.

Chief among "the things that ought to be altered" are:

A tariff which cuts us off from our proper part in the commerce of the world, violates the just principles of taxation, and makes the Government a facile instrument in the hands of private interests; a banking and currency system based upon the necessity of the Government to sell its bonds 50 years ago and perfectly adapted to concentrating cash and restricting credits; an industrial system which, take it on all its sides, financial as well as administrative, holds capital in leading strings, restricts the liberties and limits the opportunities of labor, and exploits without renewing or conserving the natural resources of the country; a body of agricultural activities never yet given the efficiency of great business undertakings or served as it should be through the instrumentality of science taken directly to the farm, or afforded the facilities of credit best suited to its practical needs; water courses undeveloped, waste places unreclaimed, for-

ests untended, fast disappearing without plan or prospect of renewal, unregarded waste heaps at every mine.

We have failed to study not only economy in production but also "the means by which government may be put at the service of humanity," and there is much to be done in the promotion of social justice.

There can be no equality of opportunity, the first essential of justice in the body politic, if men and women and children be not shielded in their lives, their very vitality, from the consequences of great industrial and social processes which they cannot alter, control, or singly cope with. Society must see to it that it does not itself crush or weaken or damage its own constituent parts. The first duty of law is to keep sound the society it serves. Sanitary laws, pure-food laws, and laws determining conditions of labor which individuals are powerless to determine for themselves are intimate parts of the very business of justice and legal efficiency.

It is inconceivable that a regeneration of the nation should be brought about by partisans or "in ignorance of the facts as they are or in blind haste."

We shall restore, not destroy. We shall deal with our economic system as it is and as it may be modified, not as it might be if we had a clean sheet of paper to write upon; and step by step we shall make it what it should be, in the spirit of those who question their own wisdom and seek counsel and knowledge, not shallow self-satisfaction or the excitement of excursions whither they cannot tell. Justice, and only Justice, shall always be our motto.

Yet it is impossible to approach the tasks before us in a purely scientific spirit. "The nation has been deeply stirred . . . by the knowledge of wrong, of ideals lost, of Government too often debauched and made an instrument of evil." Our task is no mere task of politics; it requires not only insight into the time and its needs, but the pure heart to comprehend the right course of action and the will to persevere therein. This, therefore,

is not a day of triumph; it is a day of dedication. Here muster, not the forces of party, but the forces of humanity. Men's hearts wait upon us; men's lives hang in the balance; men's hopes call upon us to say what we will do. Who shall live up to the great trust? Who dares fail to try? I summon all honest men, all patriotic, all forward-looking men, to my side. God help me, I will not fail them, if they will but counsel and sustain me.

The Cabinet.—The names of the men chosen to carry out the policies of the new administration were officially kept secret until the nominations were sent to the Senate on March 5, but conjecture, which had been busy with the Cabinet appointments since the election of 1912, supplied a complete and accurate list the day preceding the inauguration. The appointments, confirmed by the Senate March 5, were as follows:

Secretary of State.—Wm. J. Bryan, Neb.
Secretary of the Treasury.—Wm. G. McAdoo, N. Y.
Attorney-General.—James C. McReynolds, Tenn.
Secretary of War.—Lindley M. Garrison, N. J.
Postmaster-General.—Albert S. Burleson, Texas.
Secretary of the Navy.—Josephus Daniels, N. C.
Secretary of Agriculture.—David F. Houston, Mo.
Secretary of the Interior.—Franklin K. Lane, Cal.
Secretary of Commerce.—Wm. C. Redfield, N. Y.
Secretary of Labor.—Wm. B. Wilson, Penn.

The records of the members of the new Cabinet are briefly outlined on another page (see V, *The National Administration*).

Foreign Relations.—The first declarations of policy of the new administration had to do with the foreign relations of the United States. Throughout South and Central America the change of administration was regarded as an omen of a change in policy toward non-interference in the affairs of South and Central America. It was essential, in view of the urgency of the Mexican problem, that the general attitude of the Democratic Administration toward the Latin-American republics should be promptly defined. President Wilson issued on March 11 a statement of both warning and reassurance:

One of the chief objects of my administration will be to cultivate the friendship and deserve the confidence of our sister Republics of Central and South America and to promote in every proper and honorable way the interests which are common to the peoples of the two continents. . . . Coöperation is possible only when supported at every turn by the orderly processes of just government, based upon law and not upon arbitrary or irregular force. . . . We can have no sympathy with those who seek to seize the power of government to advance

their own personal interests or ambition. We are the friend of peace but we know that there can be no lasting or stable peace in such circumstances. As friends, therefore, we shall prefer those who act in the interest of peace and honor, who protect private rights and respect the restraints of constitutional provision.

The United States has nothing to seek in Central and South America except the lasting interests of the peoples of the two continents, the security of governments intended for the people, and for no special group or interest, and the development of personal and trade relationships between the two continents which shall redound to the profit and advantage of both and interfere with the rights and liberties of neither.

President Wilson repeated this pledge in the most important of his few public addresses, before the Southern Commercial Congress at Mobile, Ala., on Oct. 27, which dealt generally with Latin-American relations. "The United States," he said, "will never again seek one additional foot of territory by conquest."

On March 18 President Wilson took the first step in the repudiation of the "dollar diplomacy" of the Taft Administration by announcing the withdrawal of the United States from active participation in the Chinese loan negotiations. The grounds for this abrupt reversal of policy, which led to the resignation of Huntington Wilson, First Assistant Secretary of State, on March 19, are quoted on another page (see III, *International Relations*). In April Mr. Bryan ordered an inquiry into the interest of American consular officers and diplomatic representatives in certain enterprises connected with American investments abroad, particularly in Latin-American countries. He urged upon the President the advisability of recalling the treaties of 1911 with Nicaragua and Honduras pending before the Senate (*A. Y. B.*, 1911, pp. 65, 96-8; 1912, pp. 80, 82). Mr. Wilson has not definitely taken this action, but he referred in his Mobile address to the hard bargains driven with the Latin-American republics in the matter of loans and declared it to be one of the duties of friendship "to see that from no quarter are material interests made superior to human liberty and national opportunity."

The relations of the United States with Mexico, Japan, Great Britain, Nicaragua, and other countries are reviewed in detail elsewhere (see III, *International Relations*). The most important of the new issues of the year was the controversy with Japan, over the agricultural property rights of Japanese residents in California.

The Japanese Question in California.—Under the Naturalization Act as now interpreted, the Japanese are included among the races ineligible to American citizenship. Japanese immigration, however, has never been subjected to statutory limitation. The policy of the Japanese Government has been to discourage emigration, and in 1908, when the agitation of California for the exclusion of Japanese laborers was at its height, Japan voluntarily imposed restrictions on the emigration of laborers to the United States which were confirmed by special declaration three years later when the general treaty of 1911 was concluded (*A. Y. B.*, 1911, p. 99). The Japanese population, therefore, is comparatively small, and, like the Chinese, which it very slightly exceeds, is concentrated on the Pacific Coast, California alone having four-sevenths of all the Japanese in the country.

The Japanese in California are largely agricultural laborers. In certain localities they entirely supplanted white labor on farms and orchards, and, being saving and ambitious, began to purchase small holdings of agricultural and fruit land. By 1910, according to the census report, there were 1,816 Japanese farmers in California, about one-third of whom were owners.

On April 4 Viscount Chinda, the Japanese Ambassador, informally drew the attention af the Department of State to a bill introduced in the California legislature prohibiting the holding or leasing of land by aliens not eligible to citizenship. The Federal Alien Ownership Act of 1897 prohibits ownership of land in the District of Columbia or any territory of the United States by aliens not eligible to citizenship, with the proviso that the law shall not be construed to affect treaty obligations conferring the right to own and hold land in the United States. Several states, notably New York and Texas, have prohibited

altogether alien ownership of real property; Arizona passed a similar law in 1913; and as a universal privilege to own and hold property has been granted to no foreign Power, general state legislation of this sort contravenes none of the treaty obligations of the Federal Government. The Japanese protest against the California legislation was based on the contention that the restriction of the prohibition to aliens ineligible to citizenship was a discrimination against the Japanese in violation of the American-Japanese treaty of 1911.

The bill was passed by the lower house of the California legislature on April 15. On the 22d President Wilson telegraphed to Governor Johnson as follows:

> I appeal with the utmost confidence to the people, the Governor and the legislature of California to act in the matter now under consideration in a manner that cannot from any point of view be fairly challenged or called in question. If they deem it necessary to exclude all aliens who have not declared their intention to become citizens from the privileges of land ownership, they can do so along lines already followed in the laws of many of the other states and foreign countries, including Japan herself.

Governor Johnson replied that any act passed, while it would relate only to aliens ineligible to citizenship, would be general in character, and would provide specifically against the possibility of a construction affecting or impairing any rights secured by treaty. The President then suggested that Mr. Bryan proceed to Sacramento to explain to the Governor and legislature in person the position of the Department of State. Governor Johnson accepted the suggestion, but proceeded on April 24 to prejudice the issue by a statement upholding the doctrine of state rights and criticizing the Federal Government for interference in California's local affairs. After his arrival in Sacramento on April 28 Mr. Bryan met the Governor and legislature in three secret conferences. He endeavored to secure the postponement of all land-tenure legislation and suggested the possibility of a new treaty with Japan. The most he was able to secure was the substitution for the pending measure of a new bill drafted by Attorney-General Webb. President Wilson warned the Governor that the Webb bill, notwithstanding its careful language, would "involve an appeal to the courts on the question of treaty rights, and bring on what might be long and delicate litigation." The measure was nevertheless passed by both branches of the legislature on May 3, and received the Governor's signature on the 19th, going into effect on Aug. 17.

The Webb Alien Land-Holding Act eliminates the objectionable phrase "ineligible to citizenship," but preserves its effect by providing that all aliens eligible to citizenship may acquire and hold land on the same terms as citizens, while all other aliens are limited to the rights specifically secured to them by treaty. With regard to the Japanese the Act enacted the specific limitations of the treaty of 1911 which omits all mention of land ownership as one of the rights mutually accorded to the citizens or subjects of the two nations. The treaty reads:

> Citizens or subjects of each of the high contracting parties shall have liberty . . . to own or lease and occupy houses, manufactories, warehouses and shops . . . to lease land for residential and commercial purposes. . . .

The Japanese are thus prohibited from the ownership of agricultural land, while they are permitted to own real property used for residence or commercial purposes. Present holdings of ineligible aliens, however, are not affected, but the owners are deprived of their right to sell or devise their real property to other aliens of the same class. Leases of agricultural land to ineligible aliens are permitted for a term not exceeding three years. The Department of State holds that the Webb Act is not in violation of the Japanese Treaty; the protests of Japan, reviewed on another page (see III, *International Relations*), are based on the demand of national honor and have involved the delicate question of the admission of the Japanese to American citizenship.

The Philippine Policy.—The policy of the Democratic Administration toward the Philippine Islands has been clearly defined and sharply criticized. It was broadly stated in the inaugural address of the new Governor-

General, Francis Burton Harrison, at Manila on Oct. 7, quoted at length on another page (see VIII, *Territories and Dependencies*), and more definitely by President Wilson in his message to Congress on Dec. 2. The President said:

> We must hold steadily in view their ultimate independence, and we must move toward the time of that independence as steadily as the way can be cleared and the foundations thoughtfully and permanently laid. Acting under the authority conferred upon the President by Congress, I have already accorded the people of the Islands a majority in both houses of their legislative body by appointing five instead of four native citizens to the membership of the Commission. I believe that in this way we shall make proof of their capacity in counsel and their sense of responsibility in the exercise of political power, and that the success of this step will be sure to clear our view for the steps which are to follow.
>
> Step by step we should extend and perfect the system of self-government in the Islands, making test of them and modifying them as experience discloses their successes and their failures; that we should more and more put under the control of the native citizens of the archipelago the essential instruments of their life, their local instrumentalities of government, their schools, all the common interests of their communities, and so by counsel and experience set up a government which all the world will see to be suitable to a people whose affairs are under their own control.

The new policy has been criticized by an influential section of the press and by President Taft. Dean C. Worcester, W. Cameron Forbes, and others with intimate knowledge of Philippine conditions. They assert that during his three months in the Philippines, Mr. Harrison has removed several of the capable and experienced Americans in charge of bureaus of the insular government, notably the bureaus of customs, internal revenue, public lands and health. Some of these offices he has filled with natives, others with inexperienced Americans who accompanied him to the Islands. He has sought his information from native advisers, ignoring the counsels of the experienced American officials. Mr. Taft has warned the Administration in recent speeches of the grave dangers of the new policy, declaring that the Filipinos will not be ready for independence for at least two generations and that the raising of delusive hopes of early independence will only discredit and incommode the efforts of the United States for the betterment of the Islands.

The Newspaper Publicity Law.— Pending the decision of the U. S. Supreme Court in the suits brought by the New York *Journal of Commerce* and *Morning Telegraph* to test the validity of the newspaper publicity law of Aug. 24, 1912 (*A. Y. B.*, 1912, p. 788), the operation of the law was suspended during the closing months of the Taft Administration by tacit consent of Postmaster-General Hitchcock. One of the first official acts of Mr. Burleson, however, was to issue on March 8 an order directing enforcement, accompanied by a warning that newspapers refusing to file with the Government and publish the prescribed statements of circulation and ownership would be excluded from the mails. About 90 per cent. of the newspapers affected complied with the law before Mr. Burleson's order was invalidated on March 17 by a restraining order pending the Court's decision granted by the Supreme Court on the application of the *Journal of Commerce*. On June 10 the Court handed down a unanimous decision upholding the constitutionality of the law, interpreting its publicity provision not as an exertion of legislative power to regulate the press, or to curtail its freedom, but as merely imposing supplemental conditions under which privileges to second-class mail service may be enjoyed, since failure to comply with this provision is not punished by exclusion from the mails generally, but only from second-class privileges.

The Diggs-Caminetti Case.— The first serious embarrassment of the Administration arose from an interference by Attorney-General McReynolds with the course of justice in certain cases pending in the U. S. District Court at San Francisco. The most important of these cases involved two young married men of prominent families, Maury I. Diggs and F. Drew Caminetti, indicted under the Mann White-Slave Act for inducing two young girls of San Francisco to elope with them to Reno, Nev. The father of one of the defendants was Anthony Caminetti, recently appointed Commissioner-Gen-

eral of Immigration, and in order that Mr. Caminetti might be permitted to attend the trial of his son without interference with the duties of his office, Secretary Wilson of the Department of Labor prevailed upon Mr. McReynolds in June to order a postponement of the trial until the October term. On the receipt of this order on June 21, John L. McNab, U. S. District Attorney at San Francisco, telegraphed his resignation to President Wilson with a statement which first brought the facts into public notice. The postponement had been ordered, he said, after he had advised the Department of Justice of attempts to corrupt the Government witnesses and of the public boasts of friends of the defendants that the prosecution would be deferred through influence at Washington. President Wilson accepted Mr. McNab's resignation without comment, and began an investigation of the circumstances of the postponement, for which Secretary Wilson assumed full responsibility. On June 24 the President assured Mr. McReynolds of his entire confidence that the Attorney-General's course was prompted by "sound and impartial judgment and a clear instinct for what was fair and right," but added that "what we may think of what has been done does not relieve us of the obligation to press these cases with the utmost diligence and energy." The cases were accordingly brought to trial in August. Both defendants were convicted, and on Sept. 17 Diggs was sentenced to two years' imprisonment and a fine of $2,000 and Caminetti to 18 months' imprisonment and a fine of $1,500.

Mr. Bryan's Lectures.—The criticism of Mr. McReynolds' indiscretion in the Diggs-Caminetti case, however, was exceeded in volume and severity by the comments of the press on a lecture tour undertaken by Mr. Bryan as a means of adding to his salary as Secretary of State. On the occasion of the first of these lectures, in a small town in North Carolina on July 13, Mr. Bryan explained his acceptance of his usual fee as follows:

> I find it necessary to lecture in order to supplement the salary which I receive from the Government, the salary not being sufficient to cover my expenses. As I have lectured for 18 years, this method of adding to my income is the most natural one to which to turn, and I regard it as extremely legitimate.

In reply to a scathing resolution introduced in the Senate by Senator Bristow (Kans.) Mr. Bryan further explained his attitude thus:

> My earning capacity has been large, and I have made not only an income sufficient for my immediate needs, but have saved on an average something more than $10,000 a year. . . . I am willing to forego whatever advantage I might derive from the acquiring of $40,000 more for the privilege of serving the country in this office during the coming four years . . . but I do not believe that fair-minded people will ask it of me. . . . In devoting a part of my vacation to lecturing, I am doing what I believe to be proper, and I have no fear whatever that any unbiassed person will criticise me when he knows the facts.

Although his enterprise was widely condemned by newspapers and individuals of all parties as a degradation of his office and a flagrant neglect of its duties in the existing relations of the United States with Japan and Mexico, Mr. Bryan lectured on the Chautauqua circuit during the greater part of the summer. After concluding his season on Sept. 20, Mr. Bryan estimated the net receipts from his lectures at something over $6,500 and reiterated his determination to continue to lecture as long as he should "deem it desirable or necessary to do so." It was announced in December that Vice-President Marshall is to follow his example during the season of 1914.

THE SIXTY-THIRD CONGRESS

ORGANIZATION

Representation of Parties.—The state elections of 1912 assured to the Democrats control of the Senate in the Sixty-third Congress by a majority variously estimated from the casting vote of the Vice-President to six. The best information available at the close of the year gave the Democrats 49 members and the Republicans 45, with the two Illinois seats in doubt (*A. Y. B.*, 1912, p. 160). A coalition between the Democrats and Pro-

gressives in New Hampshire, however, elected the Democratic candidate, and the contest in Illinois, where the Progressives again held the balance of power, was decided by the election of one Democrat and one Republican. The Democrats, therefore, have 51 seats in the Senate, the Republicans have 44, and there is one Progressive, Senator Poindexter, of Washington. One of the Democratic seats has been vacant since the death of Senator Johnston of Alabama in August (see *The First Session, infra*).

Under the Apportionment Act of 1911 the membership of the House of Representatives was increased in the Sixty-third Congress from 391 to 435. The Democrats, with 291 seats, have more than double the combined representation of all the other parties. According to the official classification of the *Congressional Directory*, the remaining seats are distributed as follows: Republicans, 127; Progressive Republicans, 7; Progressives, 9; and Independent, 1. (See also V, *The National Administration.*)

Special Session of the Senate.—At noon on March 4 the Senate of the new Congress was convened in special session for the inauguration of the Democratic Administration. It remained at the disposal of President Wilson for the confirmation of executive nominations until the 17th. At the same time the Democratic majority undertook the organization of the Senate, with the result that the entire slate of committee assignments was reported to the Senate and approved before the final adjournment.

Organization of the Senate.—Within the Democratic majority in the Senate the radical or progressive element was in full control. In the first caucus, on March 5, the conservatives surrendered the party leadership held during the Sixty-second Congress by Senator Thos. S. Martin (Va.). John W. Kern (Ind.), Mr. Bryan's running mate in 1908, was elected without opposition to the chairmanship of the Democratic caucus, which carries with it floor leadership in the Senate. The caucus on March 5 created a new "steering committee" of nine members and delegated to it extensive general powers of direction over the work of the party in the Senate. In a second caucus on March 6 seven progressives were elected on Mr. Kern's nomination to this most influential body: Mr. Kern (chairman *ex officio*), G. E. Chamberlain (Ore.), R. L. Owen (Okla.), J. A. O'Gorman (N. Y.), Hoke Smith (Ga.), Luke Lea (Tenn.), and Alva Thomas (Col.). The two representatives of the conservatives are Thos. W. Martin (Va.) and James P. Clarke (Ark.).

The first important task of the steering committee was the assignment of the Democratic members to the committees of the Senate. At the outset they were confronted with an agitation on the part of certain extreme radicals for the abolition of the seniority rule in the assignment of chairmanships, on which the caucus had failed to take action. The committee decided that in general the seniority rule should be respected in so far as it did not conflict with the assignment of a safe majority of progressive Democrats to each Senate committee. Against the determined opposition of the extreme radicals, the steering committee enforced their decision in the confirmation of Senator Simmons (N. C.) as chairman of the Committee on Finance, which has charge of tariff legislation, giving him nine colleagues from the ranks of the progressive Democrats. The committee set aside the seniority rule only in the substitution of Senator Martin (Va.) for Senator Tillman (S. C.) as chairman of the Committee on Appropriations, justifying the exception by reference to the condition of Senator Tillman's health. The Democratic assignments were confirmed in caucus on March 15 and on the same day the Senate completed the election of the committees. The list contained a new Committee on Banking and Currency, created on the recommendation of the Democratic steering committee, to relieve the Committee on Finance of the impending currency legislation. The Committee on Cuban Relations was discontinued. A complete list of the chairmen of committees and of the membership of certain important committees is given on another page (see V, *The National Administration*).

The Senate Democrats in caucus on April 8 adopted a number of im-

portant caucus rules designed to limit the hitherto autocratic power of the chairmen of committees. The new rules empowered a majority of the Democratic members of any committee to call the committée in session, to appoint all conferees, and to name all sub-committees, powers formerly exercised by the chairman exclusively. The power of appointment to the steering committee was at the same time transferred from the caucus chairman to the caucus, and the function of the steering committee in filling vacancies in committees was reduced to the selection and nomination of candidates, the caucus reserving to itself the power of appointment.

The progressive Democrats unexpectedly conceded the titular honor of President *pro tempore* of the Senate to one of the most pronounced conservatives in the party. The honor was expected to go without opposition to Senator A. O. Bacon (Ga.), a moderate conservative, who had exercised the duties of the office alternately with Senator Gallinger (N. H.) since the death of Vice-President Sherman in October, 1912. Senator Bacon was defeated in caucus on March 7 by a vote of 14 to 27 by James P. Clarke (Ark.), a candidate proposed without previous warning by Senator O'Gorman (N. Y.). It was alleged that the election was a test of strength between Senator O'Gorman and Hoke Smith (Ga.), Senator Bacon's colleague and chief sponsor, both of whom aspired to be regarded as the President's spokesman in the Senate. As a consequence Senator Smith immediately offered his resignation as a member of the steering committee but was induced later to withdraw it. In the Senate on March 13 Senator Clarke was elected President *pro tempore* by a vote of 41 to 18 for Senator Gallinger, the Republican nominee.

The Senate Republicans in caucus on March 5 elected Senator Gallinger as floor leader. The Republican assignments to the Senate committees were made by a committee on committees under the chairmanship of Senator Warren (Wyo.).

Organization of the House of Representatives.—The initial steps in the organization of the House of Representatives were taken in a caucus of 270 members of the Democratic majority on March 5. Here the moderate conservatives assumed complete command and established a harmony in striking contrast with the conflict of tendencies within the Senate Democracy. Without a dissenting voice the caucus chose A. Mitchell Palmer (Pa.) to succeed Mr. Burleson as chairman of the caucus, reëlected Oscar W. Underwood (Ala.) as floor leader of the party in the House, and renominated Champ Clark (Mo.) as the party's candidate for Speaker. It continued as members of the Democratic representation in the Committee on Ways and Means, the 11 members of the former committee reëlected to the Sixty-third Congress, and supplied the three vacancies with members in sympathy with the ideas of their colleagues. The Democratic members of the Committee on Ways and Means perform for the party in the House most of the functions of the "steering committee" of the Senate Democrats. Hence the caucus at once ensured the continuity of the tariff policy of the party in the House and committed the party to a general policy of moderate conservatism.

The same caucus adopted a resolution that no member of the 11 so-called "big" committees of the House —Agriculture, Appropriations, Banking and Currency, District of Columbia, Foreign Affairs, Judiciary, Interstate and Foreign Commerce, Military Affairs, Naval Affairs, Post Offices, and Rivers and Harbors—should be allowed to serve on any other House committee. In their capacity as a committee on committees, the Democratic members of the Committee on Ways and Means decided to complete committee assignments only as the committees were required for the actual work of the House. Hence for the first few weeks of the extra session of Congress the only committees organized were those on Accounts, Enrolled Bills, Mileage, Rules, and Ways and Means, all of which were elected on April 10. The election of the other committees was completed on June 3. The list contains new Committees on Roads and on Expenditures in the Department of Labor. A com-

plete list of the chairmen of committees and of the membership of certain important committees is given on another page (see V, *The National Administration*).

The Progressive Party.—Fourteen Progressives and Progressive Republicans in open conference on April 4 formed a third party organization. Victor Murdock (Kans.) was chosen floor leader and Progressive candidate for the office of speaker. Through arrangement with the Republican floor leader, James R. Mann (Ill.), the Progressives as such obtained representation on 14 House Committees. The party is therefore recognized as an independent organization, but its voting strength has been fluctuating and uncertain. The true "progressives" in the House minority, those who were classed as "insurgents" in 1911 and their successors, number at least two score. The supporters of Mr. Murdock have rarely been more than half as many and the nominal members of the Progressive party have shown little indication of consistency of purpose or power of concerted action.

The Speakership.—The election to the speakership at the opening of the new session on April 7 resulted in the reëlection of Champ Clark by a vote of 272. James R. Mann, the Republican candidate, received 111 votes; Victor Murdock, 18; Henry A. Cooper (Wis.), four; and John A. Nelson (Wis.), one. The vote for the three minor candidates was an early illustration of the incoherence of the Progressive organization.

The Open Caucus.—In the adoption of the "open caucus" the Progressive and Republican parties in the House have introduced an important change in Congressional party management. All the conferences of the Progressives have been open to the public. The principle of the open caucus was approved by a Republican caucus on April 17, with the reservation that secret sessions may be ordered by majority vote of the party. The Democrats, however, in caucus on April 8, defeated a resolution for the adoption of the open caucus by a vote of 164 to 84, although the proposal was said to be favored by the President.

The Rules of Congress.—During its first session the new Congress made practically no change in the rules. On the first day of the session the House of Representatives adopted tentatively the House rules of the Sixty-second Congress, with the exception of Rule XXXI relating to the drawing of seats in the hall of the House, a custom abandoned because of the substitution of benches for the old chairs and desks to accommodate the increased membership. It was understood that eventually the rules would be considerably modified, but the only subsequent changes were in Rules X and XI, creating new committees on roads and on expenditures in the Department of Labor and defining their duties.

THE FIRST SESSION

President Wilson announced shortly after his election in November, 1912, that the Sixty-third Congress would be called in extra session before April 15, 1913, to revise the tariff in accordance with the pledges of the Democratic party (*A. Y. B.*, 1912, p. 44). In February Mr. Wilson fixed upon April 1 as the date of opening, but at the instance of Mr. Underwood and to give more time for the framing of the tariff legislation, the President's formal proclamation of March 17 convoked Congress on April 7. The Underwood Tariff bill was introduced on the first day of the session; it was followed on June 27 by the Owen-Glass Federal Reserve bill for the reform of the banking and currency system. The record of the session apart from these two measures is reviewed in the following paragraphs, while the momentous fiscal and monetary legislation is reserved for subsequent consideration. (See also V, *The National Administration.*)

Arbitration of Labor Disputes.—Apart from the Tariff Act, the chief piece of legislation of the first session was an Act providing for mediation, conciliation and arbitration in labor disputes on interstate carriers, a bill for which was introduced in the Senate by Senator Newlands on June 10 (S. 2517, 63d Cong., 1st sess.). It was designed to supersede the Erdman

Act of June 1, 1898, the machinery of which was repudiated in the wage dispute between the eastern railroads and their locomotive firemen early in the year (see XVII, *Labor*). The Newlands bill created a Board of Mediation and Conciliation of three members, which was empowered at the request of either party to a controversy concerning wages, hours or conditions of labor, to attempt to bring about an amicable settlement, or, if unsuccessful in adjusting the dispute by mediation and conciliation, to endeavor to persuade the parties to submit their differences to arbitration; or, in cases in which an interruption of traffic is imminent, to proffer its services to the parties without invitation. The bill provided that boards of arbitration appointed under the Act should consist, at the option of the parties, of three or six arbitrators, appointed in the usual way; but the Board of Mediation and Conciliation was empowered to appoint the third arbitrator of a board of three in five days, or the two independent arbitrators of a board of six in 15 days, after the first meeting of the arbitrators appointed by the parties to the dispute in case of their failure to reach an agreement.

The bill was passed by the Senate on June 26. At the instance of Secretary Wilson a substitute bill was introduced in the House by Mr. Clayton (Ala.) providing for boards of arbitration of nine members to be under the jurisdiction of the Department of Labor, instead of under an independent Board of Mediation and Conciliation. The Newlands bill, however, was enacted and signed by the President on July 15 (Public, No. 6) in order to avert a threatened strike of trainmen and conductors on the eastern railroads, whose dispute was the first arbitrated under the Act. (See also XVII, *Labor;* and XXII, *Railroads.*)

The Seamen's Bill.—A bill to abolish arrest and imprisonment as a penalty for desertion and otherwise to promote the welfare of seamen in the American merchant marine (S. 136, 63d Cong., 1st sess.), introduced by Senator La Follette, was passed by the Senate on Oct. 26. This bill is much more drastic in its provisions than the measure President Taft refused to approve (see *The Sixty-second Congress, supra*). It prescribes at least two watches for sailors and three watches for firemen, oilers, and watertenders at sea and a nine-hour day in port without unnecessary work on Sundays or holidays; payment of wages on demand in home or foreign ports within certain specified periods; and minimum forecastle space, washing accommodations and allowances of water and butter. It provides that seamen in one department shall not be required to do duty in another department except in emergency and that seamen may call for a survey in a foreign port. No vessel of 100 tons gross and upward except those navigating rivers exclusively is to be permitted to leave any port of the United States unless 75 per cent. of the crew in each department are able to understand any order given by the officers and 65 per cent. of the crew (in the fourth year after the passage of the Act, rising from 40 per cent. in the first year) are rated as able seamen; furthermore, no vessel carrying passengers, except those navigating rivers and harbors exclusively, is to be permitted to leave any port of the United States without lifeboat accommodation sufficient for every passenger and every member of the crew and a sufficient crew to man each lifeboat with not less than two able seamen drilled in the handling and lowering of lifeboats. The bill abolishes arrest and imprisonment as a penalty for desertion and provides for the abrogation of treaties and the repeal of statutes under which deserting seamen are arrested, detained and surrendered back to the vessel; it prohibits also corporal punishment for disobedience. Protests against the measure filed with the House Committee on interstate and foreign commerce represent that it is subversive of all discipline and in its requirements for lifeboats and crews likely to be totally destructive of the American merchant marine.

Appropriation Acts.—The Sundry Civil Appropriation bill vetoed by President Taft (see *The Sixty-second Congress, supra*) was signed by President Wilson on June 23. The rider exempting labor unions and farmers' organizations from prosecution under

the Sherman Act which Mr. Taft characterized as "class legislation of the most vicious sort" was universally condemned; nevertheless, the Senate in passing the bill on May 7 rejected by a vote of 41 to 32 a motion by Senator Gallinger (N. H.) to strike out the offending clause. Mr. Wilson palliated his approval of the bill on the ground that while he would have vetoed the exemption clause if it could have been separated from the rest of the bill, it could in no wise embarrass the Department of Justice.

> I do not understand that the limitation was intended as either an amendment or an interpretation of the anti-trust law, but merely as an expression of the opinion of the Congress . . . not intended to touch anything but the expenditure of a single small additional fund. I can assure the country that this item will neither limit nor embarrass the actions of the Department of Justice. Other appropriations supply the Department with abundant funds to enforce the law.

An Urgent Deficiency Appropriation bill was signed by the President on Oct. 22. The chief importance of the bill lay in two riders, one abolishing the Commerce Court (see *infra*) and the other exempting from civil-service regulations U. S. deputy marshals and deputy collectors of internal revenue, the latter a class of officials vastly increased in numbers and importance by the establishment of the income tax. Mr. Wilson defended his approval of the exemption, which was widely criticised as a raid on the merit system (see V, *Civil Service*), as follows:

> I am convinced after a careful examination of the fact that the offices of deputy collector and deputy marshal were never intended to be included under the ordinary provisions of the civil-service law. The control of the whole method and spirit of the administration of the proviso in this bill which concerns the appointment of these officers is no less entirely in my hands than it was before the bill became law . . . and there is no danger that the spoils principle will creep in with my approval or connivance.

Abolition of the Commerce Court.—After four years of precarious existence the Commerce Court created by the Tariff Act of 1909 was abolished on Dec. 31. The House Democrats in caucus on June 25 resolved "that the Commerce Court be immediately abolished during the present session" and directed the Committee on Rules "to bring into the House a rule making in order appropriate legislation for such purpose on any appropriation bill during the present session." Accordingly the Committee agreed to the incorporation in the Urgent Deficiency Appropriation bill of a specific provision abolishing the Court and vesting its jurisdiction in the U. S. District Courts. Before passing the bill on Sept. 9 the House adopted by a vote of 180 to 78 an amendment offered by Mr. Bartlett (Ga.) to legislate the judges out of office by the repeal of the law authorizing the appointment of five additional Circuit Court judges for service in the Commerce Court. The Senate, however, struck out this amendment and provided for the retention of the judges on the general bench for circuit and district court assignments. On the insistence of the President that some provision be made for the judges, the House agreed in conference to the Senate amendment.

The Seventeenth Amendment.—Less than a year after its submission to the states, the Seventeenth Amendment to the Federal Constitution, providing for the direct election of Senators, received its thirty-sixth ratification on May 9, and was formally proclaimed by Secretary of State Bryan on May 31 (see also II, *Popular Government*). The rapidity with which the states adopted this extension of popular government was in striking contrast with the slow progress of the income tax amendment submitted in 1909 and proclaimed three months before (see *The Sixty-second Congress, supra*). The text of the amendment is as follows:

> ARTICLE XVII. The Senate of the United States shall be composed of two Senators from each state, elected by the people thereof, for six years; and each Senator shall have one vote. The electors in each state shall have the qualifications requisite for electors of the most numerous branch of the state legislatures.
>
> When vacancies happen in the representation of any state in the Senate, the executive authority of such state shall issue writs of election to fill such vacancies: *Provided*, That the legislature of any state may empower the executive thereof to make temporary appointments until the people fill the vacancies by election as the legislature may direct.

This amendment shall not be construed as to effect the election or term of any Senator chosen before it becomes valid as part of the Constitution.

The dates on which the amendment was ratified by the various states were as follows:

1912

Arizona, June 3
Minnesota, June 10
Massachusetts, May 22

1913

Arkansas, Apr. 14
California, Jan. 28
Colorado, Feb. 13
Connecticut, Apr. 15
Idaho, Jan. 31
Illinois, Feb. 13
Indiana, Mar. 6
Iowa, Feb. 6
Kansas, Jan. 17
Maine, Feb. 20
Michigan, Jan. 28
Missouri, Mar. 7
Montana, Feb. 7
Nebraska, Feb. 5
Nevada, Feb. 19
New Hampshire, Feb. 21
New Jersey, Mar. 18
New Mexico, Mar. 15
New York, Jan. 15
North Carolina, Jan. 25
North Dakota, Feb. 18
Ohio, Feb. 25
Oklahoma, Feb. 24
Oregon, Jan. 23
Pennsylvania, Apr. 15
South Dakota, Feb. 27
Tennessee, Apr. 1
Texas, Feb. 7
Vermont, Feb. 19
Washington, Feb. 7
West Virginia, Feb. 4
Wisconsin, May 9
Wyoming, Feb. 11

The first Senator elected by popular vote was Augustus O. Bacon (Dem.), chosen by the voters of Georgia in a special election on July 15 to succeed himself for the term expiring in 1919.

The Alabama Senatorship — The death of Senator Joseph F. Johnston of Alabama on Aug. 8 raised the question of the right of a state Governor under the Seventeenth Amendment to appoint a successor for the unexpired term of a Senator in office at the time of the proclamation of the amendment. Governor O'Neal on Aug. 12 nominated Representative Henry D. Clayton for the remainder of Senator Johnston's term, ending March 3, 1915, defending his right to make the appointment on the ground that the Seventeenth Amendment was not to be "so construed as to effect the election or term of any Senator chosen before it became valid as part of the Constitution." Many of the Senate leaders, however, held that a special election should have been called to empower the Governor to make the nomination, and the Committee on Credentials refused to confirm Mr. Clayton's appointment. Mr. Clayton resigned the appointment in October in response to the request of President Wilson that he remain at the head of the House Committee on the Judiciary to assist the President in carrying out a programme of anti-trust legislation projected for the next session and the next Congress. Governor O'Neal on Nov. 17 appointed Frank P. Glass, editor of the *Birmingham News*, but as the question of the Governor's right to make the appointment has not been decided, Alabama is still deprived of one representative in the Senate. Mr. Underwood announced on Oct. 4 his candidacy for election to the Senate from Alabama for the term beginning in 1915.

The Lobby Inquiry.—The most important extra-legislative activity of the first session of the Sixty-third Congress was the investigation undertaken by committees of the Senate and House into charges by President Wilson of the existence of a powerful and sinister lobby against the Tariff bill. Impatient of the slow progress of the bill in the Senate Committee on Finance (see *The Underwood Tariff Act, infra*), Mr. Wilson on May 26 issued the following sensational statement:

> I think that the public ought to know the extraordinary exertions being made by the lobby in Washington to gain recognition for certain alterations of the Tariff bill. Washington has seldom seen so numerous, so industrious or so insidious a lobby. The newspapers are being filled with paid advertisements calculated to mislead not only the judgment of public men but also the public opinion of the country itself. There is every evidence that money without limit is being spent to sustain this lobby and to create an appearance of a pressure of public opinion antagonistic to some of the chief items of the Tariff bill. . . . The Government in all its branches ought to be relieved from this intolerable burden and this constant interruption to the calm progress of debate.

The Senate on May 29 adopted by a vote of 38 to 28 a resolution directing the Committee on the Judiciary to investigate the alleged lobby and to report to the Senate within 10 days its personnel, methods and objects, and also the direct or indirect connection of the members of the Senate with corporations engaged in the manufacture or sale of commodities mentioned in the Tariff bill. In pursuance of this resolution a committee of five members of the Judiciary

Committee under the chairmanship of Senator Overman (N. C.) was appointed on May 31 and immediately opened the inquiry by taking the testimony of the 96 Senators on a series of 11 questions designed to disclose their financial or professional interest in the pending tariff legislation, their attempts to influence other Senators thereon, and their knowledge of the nature, extent and agency of the representations made by private parties to secure amendment of the Underwood bill. Having obtained from this inquisition the names of a large number of persons who had interviewed Senators with respect to pending legislation, the Committee decided to broaden the scope of the inquiry to cover all organized efforts to influence action on legislation of any kind then pending or under consideration in the recent past, and to this end the time for report was extended by the Senate, first to June 28 and later indefinitely. In the early part of the inquiry which began on June 9, the committee gave attention to the opposition to the Tariff bill, particularly the free-sugar and free-wool sections, without discovering material evidence of improper influence. Early in July the course of the inquiry was directed into new channels by sensational testimony and counter-testimony relating to the alleged activities of the certain self-confessed agents of the National Association of Manufacturers and an organization known as the American Anti-trust League. The stories of Martin M. Mulhall of the influences brought to bear on past and present Representatives by the National Association of Manufacturers led the House to provide on July 9 for an independent investigation by a committee of seven under the chairmanship of Mr. Garrett (Tenn.). This committee presented to the House on Dec. 9 a long report of their investigations (H. Report No. 113, 63d Cong., 2d sess.). They found the Mulhall charges of improper influences entirely without foundation except in the case of one Representative, James F. McDermott (Ill.), whom the committee found "guilty of acts of grave impropriety, unbecoming the dignity of the distinguished position he occupies." The report was referred to the Committee on the Judiciary, who are to report what action should be taken thereon. The Senate committee has not reported.

THE SECOND SESSION

The second session of the Sixty-third Congress opened at noon on Dec. 1. Attempts to adjourn the first session in November, in order that members might collect their mileage allowance, were frustrated by the President's insistence that no recess be taken until the Currency bill was disposed of. There was no break, therefore, between the first and second sessions. The chief event of the second session was the passage of the Currency bill (see *The Federal Reserve Act, infra*). With that measure disposed of, both houses adjourned on Dec. 23 to Jan. 12, 1914.

The President's Message.—President Wilson read his first annual message to Congress in joint session of the two houses on Dec. 2. His brief address was in striking contrast to the formidable documents in which recent Presidents have been wont to review the foreign relations of the United States and the activities of the executive departments. After a brief reference to the leadership of the United States in the promotion of international comity, as exemplified by the assent in principle of 31 nations to the peace plan proposed by Secretary Bryan, and to the condition of affairs in Mexico (see III, *International Relations*), Mr. Wilson turned to the exposition of a few important policies proposed for translation into legislative action. These were:

1. Banking and currency reform, to be secured by the enactment of the pending bill.
2. Establishment of a system of rural credits, to make the farmers' abundant and substantial credit resources available as a foundation for joint, concerted, local action in their own behalf in getting the capital they must use.
3. Prevention of private monopoly by additional anti-trust legislation.
4. Provision for a national primary for the nomination of Presidential candidates.
5. Extension of citizenship to Porto Rico, of a further degree of self-government to Hawaii, and ultimate independence to the Philippines.
6. Development of the resources of Alaska, with a Government system of

railways as a first step, and establishment of a full territorial form of government.

7. Extension of the equipment and powers of the Bureau of Mines for the encouragement of safe and economical mining.

8. Provision of an effective employers' liability law for railway employees.

9. Alleviation of the conditions surrounding the employment of sailors.

In urging the prompt enactment of legislation to provide for primary elections to enable the voters of the several parties to "choose their nominees for the Presidency without the intervention of nominating conventions," the President said:

I venture the suggestion that this legislation should provide for the retention of party conventions, but only for the purpose of declaring and accepting the verdict of the primaries and formulating the platforms of the parties; and I suggest that these conventions should consist not of delegates chosen for this single purpose, but of the nominees for Congress, the nominees for vacant seats in the Senate of the United States, the Senators whose terms have not yet closed, the national committees and the candidates for the Presidency themselves, in order that platforms may be framed by those responsible to the people for carrying them into effect.

The most important subject dealt with in the message, the extension of the anti-trust law, the President dismissed very briefly wih a promise of a subsequent special message. The general nature of the legislation to be proposed was foreshadowed thus:

The immediate service we owe the business communities of the country is to prevent private monopoly more effectually than it has yet been prevented. I think it will be easily agreed that we should let the Sherman anti-trust law stand, unaltered, as it is, with its debatable ground about it, but that we should as much as possible reduce the area of that debatable ground by further and more explicit legislation; and should also supplement that great Act by legislation which will not only clarify it but also facilitate its administration, and make it fairer to all concerned.

Estimates for 1915.—The estimates for the fiscal year 1915, prepared by the different Departments and submitted to Congress by Secretary McAdoo on Dec. 1, asked for appropriations amounting to $1,108,681,777, a sum $22,864,067 in excess of the appropriations for 1914 but $39,255,066 less than the estimates for that year. The cost of the Postal Service, estimated at $306,953,117, is expected to be met out of the revenue of the Post Office. Decreases are anticipated in the expenditures for public buildings, $6,486,000; rivers and harbors, $9,472,000; and pensions, $11,150,000. The principal increases are requested by the War Department, $16,557,000; Navy Department, $3,670,000; and Department of Commerce, $4,225,000; while the Panama Canal is expected to cost $5,180,000 more than in 1914. The War Department increase is largely in the items of fortifications and organized militia. The small increase in the Navy Department accompanies a building programme including two battleships and eight destroyers. Secretary Redfield's estimates provide for a force of foreign commercial attachés, a new census of manufactures, and extended activities of the Bureau of Corporations in the investigation of corporation stock and bond issues, holding companies, interlocking directorates, etc., the economy and efficiency of trusts, and the conflict of state corporation laws.

Secretary McAdoo estimates the ordinary receipts for 1914 at $736,000,000, and the ordinary expenditures at $709,000,000. For 1915 the ordinary disbursements are estimated at the same figure, while the ordinary receipts are estimated to decline to $728,000,000. The surplus of $26,000,000 is estimated practically to meet the appropriation required for the Panama Canal.

Legislation.—Besides the Federal Reserve Act, Congress enacted in December only one measure of general interest, the bill empowering the city of San Francisco to impound a water supply in the Hetch Hetchy Valley (H. R. 7207, 63d Cong., 1st sess.), approved by the President on Dec. 19 (see X, *Public Lands;* and XXIII, *Engineering*).

On Dec. 3 the House passed a bill introduced by Mr. Hay (Va.) empowering the President to organize volunteer regiments for war purposes whenever in his judgment war is imminent or actually exists (H. R. 7138, 63d Cong., 2d sess.). The volunteer force thus organized would be enlisted for the entire war and would be entirely separate from the organized militia and on an equal footing with the regular Army. The President would appoint all officers, not more

than four regulars to any one volunteer regiment. The strength of the force for which provision is made in the bill is estimated at 242,000 men.

THE UNDERWOOD TARIFF ACT

Preparation of the New Law.—The preparation of the Underwood Tariff Act of 1913 began in the first session of the Sixty-second Congress in 1911. In the chemical, metal, textile, and sugar schedules the new law followed in general the provisions of the tariff bills vetoed by President Taft in 1911 and 1912 (*A. Y. B.*, 1911, pp. 48-52, 291; 1912, pp. 332-4), and the principles laid down therein governed the revision of the remaining schedules. The actual drafting of the Underwood bill was begun by the Democratic members of the Committee on Ways and Means on the opening of the final session of the Sixty-second Congress in December, 1912. A series of hearings on the different schedules were held in January and the first draft of the bill was completed late in February. At the close of the special session of the Senate in March, the Democratic members of the Senate Committee on Finance were admitted to conferences on the measure, which continued, with the occasional participation of President Wilson, until the opening of Congress on April 7. The bill as approved by the President and the Committee on Ways and Means was introduced in the House by Mr. Underwood on the first day of the session. It was immediately submitted to the Democratic caucus and on April 21 Mr. Underwood reintroduced the bill as amended by the caucus as an original measure (H. R. 3321, 63d Cong., 1st sess.).

The President's Tariff Message.—President Wilson presented his first message to Congress on the second day of the session. He abandoned the custom of written messages followed for 112 years by every President since Jefferson, and, reverting to the practice of Washington and John Adams, read his message in person to the two houses of Congress assembled in joint session. The purpose of the extra session, said Mr. Wilson, was the revision of the tariff in accordance with the mandate received by the Democratic party in the election of 1912. The President made no specific reference to the measure which represented his own views and the views of the leaders of the Democratic party in Congress, but dealt broadly with the fundamental principle of the pending legislation in the following significant passage:

> No one who looks the facts squarely in the face or knows anything that lies beneath the surface of action can fail to perceive the principles upon which recent tariff legislation has been based. . . . Consciously or unconsciously, we have built up a set of privileges and exemptions from competition behind which it was easy by any, even the crudest, forms of combination to organize monopoly; until at last nothing is normal, nothing is obliged to stand the tests of efficiency and economy, in our world of big business, but everything thrives by concerted arrangement. Only new principles of action will save us from a final hard crystallization of monopoly and a complete loss of the influences that quicken enterprise and keep independent energy alive.
>
> It is plain what those principles must be. We must abolish everything that bears even the semblance of privilege or of any kind of artificial advantage, and put our business men and producers under the stimulation of a constant necessity to be efficient, economical, and enterprising, masters of competitive supremacy, better workers and merchants than any in the world. Aside from the duties laid upon articles which we do not, and probably cannot, produce, therefore, and the duties laid upon luxuries and merely for the sake of the revenues they yield, the object of the tariff duties henceforth laid must be effective competition, the whetting of American wits by contest with the wits of the rest of the world.

The Democratic Theory of Tariff Revision.—The practical application of these principles in the framing of the Underwood bill was outlined by Mr. Underwood in an explanatory statement accompanying the bill (H. R. Report No. 5, 63d Cong., 1st sess.). At the outset the Democrats rejected as a guide to the fixing of tariff rates the doctrine of the Tariff Board that the United States should maintain a system of tariff rates equal to the differences in cost between foreign and domestic production plus a reasonable margin of profit. The Committee on Ways and Means adopted as fundamental the two essential ideas of the

tariff plank of the Democratic platform of 1912, first, that tariff duties should be designed primarily to produce revenue for the Government and without thought of protection, and second, that such duties should be established by legislation that will not injure or destroy legitimate industry.

In the practical application of the first principle, the Committee kept in mind the distinction between the necessities and luxuries of life, reducing the tariff burdens on the necessities to the lowest points commensurate with revenue requirements and making the luxuries of life bear their proper portion of the tariff responsibilities. Many items of manufacture controlled by monopolies have been placed on the free list.

In applying the second principle the Committee had to consider the effect of the sudden elimination of the multitude of unnecessary and uneconomical establishments which had grown up under the protective system. To avoid unnecessary disturbance of trade and to give every opportunity for reasonable adjustment, a gradual transition in tariff conditions was demanded, and the Underwood Tariff attempts, as a preliminary step,

1. To eliminate protection of profits and to cut off the duties which enable industrial managers to exact a bonus for which no equivalent is rendered.
2. To introduce in every line of industry a competitive tariff basis providing for a substantial amount of importation, to the end that no concern shall be able to feel that it has a monopoly of the home market gained other than through the fact that it is able to furnish better goods at lower prices than others.

The theory of a competitive tariff is briefly this:

Where the tariff rates balance the difference in cost at home and abroad, including an allowance for the difference in freight rates, the tariff must be competitive, and from that point downward to the lowest tariff that can be levied it will continue to be competitive to a greater or less extent. Where competition is not interfered with by levying the tax above the highest competitive point, the profits of the manufacturer are not protected. On the other hand, when the duties levied at the custom house are high enough to allow the American manufacturer to make a profit before his competitor can enter the field, we have invaded the domain of the protection of profits. In our judgment the protection of any profit must of necessity have a tendency to destroy competition and create monpoly, whether the profit protected is reasonable or unreasonable.

Hence the programme of the Democratic party

is the gradual and insistent reduction of our tariff laws to a basis where the American manufacturer must meet honest competition, where he must develop his business along the best and most economical lines; where, when he fights at home to control his market, he is forging the way in the development of his business to extend his trade in the markets of the world. In our judgment the future growth of our great industries lies beyond the seas.

The Underwood Bill.—H. R. 3321 was referred to the Committee on Ways and Means on April 21 and reported without change the following day. The general character of the measure is outlined in the following summary of the more important changes proposed, quoted from Mr. Underwood's explanatory statement (see also XIV, *Public Finance;* and XXI, *Manufactures*):

Schedule A, Chemicals, Oils, and Paints.—The rates on certain commodities show heavy reductions. Boracic acid is cut from 78.70 per cent., computed on imports of 1912, to 21.43 per cent., glue from 35.06 to 14.29 per cent., and red lead from 60.35 to 25 per cent. Moderate reductions have been made on medicinal preparations, which are cut from 25 to 15 per cent., drugs from 12.54 to 10 per cent., and olive oil in bottles from 35.18 to 21.05 per cent.

Schedule B, Earths, Earthenware, and Glassware.—Rates on all brick have been cut on the average from 30.23 per cent., computed on imports of 1912, to 10.28 per cent., tile from 47.84 to 23.38 per cent., asphalt from 35.05 to 9.62 per cent. Ordinary earthenware, which was already relatively low, being subject to an average duty of 24.67 per cent., has now been cut to 15 per cent., while window glass has been given an average reduction of from 46.38 to 28.30 per cent.

Schedule C, Metals and Manufactures of.—In iron, steel, and their products, and other metals, there have been important extensions of the free list, including iron ore and steel rails. Pig iron and slabs, which were 16.35 and 17.79 per cent., have been cut to 8 per cent. in each case; beams from 23.20 to 12 per cent., and forgings from 30 to 15 per cent.

Schedule D, Wood and Manufactures of.—The idea of the large extension of the free list for the unmanufactured products has been the fundamental conception. Thus sawed boards other than cabinet wood have been carried to the free list, while sawed cabinet woods, which were 12.75 per cent., are now 10 per cent.; casks, barrels, etc., which were 30 per cent. in 1912, are now 15 per cent.; and house furniture, which was 35 per cent., is now 15 per cent.

Schedule E, Sugar, Molasses, and Manufactures of.—The action of the

committee with regard to sugar shows an appreciation of the commercial conditions involved and the committee's desire to respond to the public demands for free sugar. The plan as provided in the bill is to reduce with its passage the present sugar rates ($1.65 per 100 lbs.) by 25 per cent., with the further provision that May 1, 1916, sugar goes on the free list.

Schedule F, Tobacco, and Schedule H, Spirits, Wines, and Other Beverages.—Schedules F and H have been found to be good producers of revenue, are sufficiently adjusted to the internal-revenue duties of the United States, deal entirely with articles not to be classed as necessaries, and have, with the exception of scrap tobacco and mineral waters, been left at the same rates as in the present law.

Schedule G, Agricultural Products.—In the effort to relieve the consumer, and to mitigate the high and rising cost of living, Schedule G has been thoroughly revised and important reductions have been made. Horses valued at more than $150 have been cut from 25 to 10 per cent., cattle from 27.07 to 10 per cent., sheep from 16.41 to 10 per cent., barley from 43.05 to 23.08 per cent., macaroni from 34.25 to 23.81 per cent., hay from 43.21 to 26.67 per cent., lemons from 64.85 to 24.03 per cent., and live poultry from 13.10 to 6.67 per cent.

Schedule I, Cotton Manufactures.—Particular attention has been paid to the revision of this schedule in the effort to adjust it more equitably both to the needs of the consumer and to the condition of the manufacturing industry in the United States. Comparisons of the principal items show reductions on cotton thread from 31.54 to 19.29 per cent., on spool thread from 22.95 to 15 per cent., on cotton cloth from 42.75 to 26.44 per cent., on ready-made clothing from 50 to 30 per cent., on collars and cuffs from 64.03 to 25 per cent., on handkerchiefs from 59.27 to 30 per cent., on stockings selvedged, etc., from 75.38 to 40 and 50 per cent., according to value, on gloves from 89.17 to 35 per cent., and on underwear from 60.28 to 30 per cent.

Schedule J, Flax, Hemp, and Jute, and Manufacturers of.—Schedule J has been similarly dealt with. Raw flax and raw hemp have been reduced from $22.40 and $22.50 per ton, respectively, to $11.20 each, jute yarns not finer than five lea have been cut from 26.90 to 15 per cent., cables and cordage of istle, etc., from 6.43 to 4.55 per cent., oilcloths for floors from 44.29 to 20 per cent., handkerchiefs from 50 to 35 per cent.

Schedule K, Wool and Manufactures of.—Schedule K, dealing with wools and woolen manufactures, has been the center of criticism for many years and the Committee has given it very careful study. The result has been to make raw wool free of duty, and reduce yarns from 79.44 to 20 per cent., blankets from 72.69 to 25 per cent., flannels from 93.29 to 25 and 35 per cent., according to value, dress goods from 99.70 to 35 per cent., clothing from 79.56 to 35 per cent., webbings, etc., from 82.07 to 35 per cent., and carpets from rates ranging from 50 to 88 per cent. to rates ranging from 20 to 50 per cent.

Schedule L, Silk and Silk Goods.—In Schedule L it has been sought to convert the schedule, previously almost wholly specific, to an ad valorem basis, thereby placing it upon an equality of treatment with the other schedules allied to it and eliminating the possibility of concealed protection. Inasmuch, however, as silk and silk goods are distinctly to be classed as luxuries, it has been deemed wise to make only very moderate reductions in the rates of duty. Partially manufactured silk has been cut from 21.01 to 15 per cent., spun silk yarn from 37.09 to 35 per cent., sewing silk from 25 to 15 per cent., silk velvets and plushes from 53.64 to 50 per cent., silk handkerchiefs (plain) from 50 to 40 per cent., ribbons from 50 to 40 per cent., woven fabrics from 54.89 to 45 per cent., and artificial silk yarns from 41.75 to 35 per cent.

Schedule M, Pulp, Papers and Books.—Print paper, the cost of production of which is as low in this country, under favorable conditions, as it is anywhere in the world, has been transferred to the free list when worth less than 2½ cents per pound, while the higher grades have been given a tariff of 12 in place of 15.80 per cent. Copying paper has been cut from 42.33 to 30 per cent., bags, envelopes, etc., from 49.92 to 35 per cent., parchment papers from 47.94 to 35 per cent., photographic paper from 28.99 to 25 per cent., writing paper from 45.13 to 25 per cent., common wrapping paper from 35 to 25 per cent., and books from 25 to 15 per cent.

Schedule N, Sundries.—Schedule N, which deals with a variety of sundries, calls for comparatively little comment, except to say that the general principles of tariff reduction have been applied to each of the items carried in the schedule according to the peculiarities of each. Thus trimmed hats are given only a moderate reduction, being cut from 50 to 40 per cent., while brooms are substantially reduced, being cut from 40 to 15 per cent. Jewelry has been but slightly reduced, falling from 75.74 to 60 per cent.

The Free List.—The bill added to the free list over 100 items, the more important being:

Acetic acid	Tallow
Sulphuric acid	Milk
Alcohol	Cream
Ammonium nitrate	Bread
Borax	Buckwheat
Charcoal	Corn
Copperas	Cornmeal
Indigo	Oatmeal
Paris green	Flour[1]
Sulphur	Rye
Soda	Rye flour
Tanning materials	Potatoes
Iron ore	Salt
Nails	Swine
Horseshoes	Bagging
Fence wire	Raw wool

[1]Dutiable at 10 per cent. from countries imposing duty on U. S. flour.

Steel rails	Woolen rags
Tungsten ores	Wood pulp
Cash registers	Printing paper
Sewing machines	Bran
Typewriters	Coal
Lumber	Coke
Laths	Gloves
Pickets	Boots and Shoes
Shingles	Harness
Timber	Saddlery
Meats	Agricultural Implements
Fish	
Lard	Leather

On the other hand duties were imposed on about 70 items previously free, including aniline dyes, balsams, coal-tar products, gums, essential oils, roots, spices, uncut diamonds and other precious stones (10 per cent.), and furs and fur skins (10 per cent.).

Estimated Revenue. — The total value of dutiable imports in the fiscal year 1912 was $759,209,915; the customs receipts were $304,597,035, an average rate of duty of 40.12 per cent. For the first 12-month period under the rates proposed in the Underwood bill, the Treasury Department estimated the value of free imports at $102,403,000, the value of dutiable imports at $798,596,000, and the customs receipts at $266,701,000, an average rate of duty of 29.60 per cent. The total receipts of the Government in 1912 were $938,522,481. The Treasury Department estimated that in the first year under the new tariff the receipts would fall to $926,000,000, the loss in customs revenues being only partially offset by an increase in postal revenue. Expenditures, which reached $901,297,979 in 1912, would be swelled in the same year by increases in pensions and the military, naval, and postal services to $994,790,000. Hence the deficit to be anticipated under the Underwood tariff was estimated at $68,790,000.

The Income Tax.—To secure additional revenue to balance the budget, the power to levy a tax on incomes newly granted by the Sixteenth Amendment to the Federal Constitution was put into effect. The Underwood bill imposed a normal tax of one per cent. per annum on the net income of all persons residing in the United States and of citizens of the United States residing abroad, above an exemption limit of $4,000, and of all corporations and joint-stock companies, without exemption. The normal tax applied only to net incomes of less than $20,000. For the purpose of graduating the tax on individuals the bill imposed additional taxes on larger incomes as follows: one per cent. on the amount by which the total net income exceeds $20,000 up to a limit of net income of $50,000; two per cent. on the amount by which the total net income exceeds $50,000 up to a limit of net income of $100,000; and three per cent. on the amount by which the total net income exceeds $100,000. Subject to certain exemptions and deductions, the net income of a taxable person was defined as:

> Gains, profits and income derived from salaries, wages, or compensation for personal service of whatever kind and in whatever form paid; or from professions, vocations, businesses, trade, commerce, or sales or dealings in property, whether real or personal, growing out of the ownership or use of or interest in real or personal property, also from interest, rent, dividends, securities, or the transaction of any lawful business carried on for gain or profit, or gains or profits and income derived from any source whatever, including the income from, but not the value of, property acquired by bequest, devise, or descent.

A special clause exempted from computation as income the proceeds of life-insurance policies paid upon the death of the person insured. The deductions allowed in computing net income were specified as:

> The necessary expenses actually incurred in carrying on any business, not including personal, living, or family expenses; all interest accrued and payable within the year by a taxable person on indebtedness; all national, state, county, school and municipal taxes accrued within the year, not including those assessed against local benefits or taxes levied hereunder; losses actually sustained during the year, incurred in trade or arising from fires, storms, or shipwreck, and not compensated for by insurance or otherwise; debts actually ascertained to be worthless and charged off during the year; also a reasonable allowance for the exhaustion, wear and tear of property arising out of its use or employment in the business, but not for the expense of restoration or permanent improvement of property.

Dividends on the stock of any corporation taxable on its net income were exempted from the tax on individuals, and also interest on the obligations of the United States or any of its political subdivisions.

The bill provided that only one deduction of $4,000 should be made from the aggregate income of all the

members of any family composed of husband and wife and one or more minor children. On or before March 1 of each year each taxable person was required to file with the collector of internal revenue of the district a sworn statement of gross and net income for the preceding calendar year. All persons, corporations, and associations of any sort having in the capacity of employer, agent, trustee, or otherwise the control, receipt, custody, or payment of salaries, rent, interest or other fixed or determinable annual gains, profits, or income of another individual, were required to file with the collector of internal revenue of the district a statement of the portion so controlled of the income of each such individual; and when the income so controlled exceeded $4,000 for any taxable year, other than dividends on capital stock, the person, corporation, or association was required to deduct therefrom and pay to the authorized agent of the Government the amount of the normal tax. In all cases in which the income tax of an individual should be thus deducted and paid at the source, the bill required that an affidavit claiming the benefit of the exemption of $4,000 and of the authorized deductions must be filed by the individual with the person or association required to withhold and pay the tax at least 30 days in advance of the date on which the return is due.

The tax imposed on individual incomes by H. R. 3321 as introduced in the House was estimated to affect 425,000 persons and to yield $70,-125,000.

The Corporation Tax.—The section of the Underwood bill imposing a tax of one per cent. on the net incomes of corporations and joint-stock companies abolished the exemption of $5,000 allowed by the corporation-tax law enacted in 1909 as part of the Payne-Aldrich Act (*A. Y. B.*, 1910, pp. 325-7). The two laws, however, were practically identical.

Administrative Features.—The Underwood bill maintained intact the reciprocity treaty with Cuba and granted absolute free trade to the Philippine Islands by the removal of the limitations established by the Payne-Aldrich Act on the amount of rice, tobacco, and sugar entitled to free entry into the United States. It abolished the maximum and minimum provisions of the Payne-Aldrich Act and empowered the President "to negotiate trade agreements with foreign nations, wherein mutual concessions are made looking toward freer trade relations and further reciprocal expansion of trade and commerce," subject to the ratification of Congress by a majority vote in each house. To protect American producers against exportation of articles from foreign countries to the United States at less than the fair market value of the same articles when sold for home consumption the bill contained a "dumping clause," providing for a special additional dumping duty, not to exceed 15 per cent. ad valorem, equal to the difference between the export price and the selling price in the home market. The bill also imposed an additional countervailing duty on articles subject directly or indirectly to bounty in the countries of production equal to the net amount of the grant. To encourage domestic shipbuilding the bill removed the limitations on the free importation of foreign shipbuilding material, and provided for a discount of five per cent. from the duties imposed on merchandise imported in vessels of American registry. As a safeguard against the maintenance of duties at rates too high to produce reasonable competition, the President was instructed each year to ascertain and to report to Congress the articles of merchandise imported to an amount less than five per cent. of the estimated domestic consumption. The penalties for attempted evasion of the customs law were made more severe, and to facilitate the detection of undervaluation and fraud, the Secretary of the Treasury was empowered to exclude from entry the merchandise of foreign exporters or manufacturers refusing to submit their books to the examination of duly accredited investigating officers of the United States.

The Bill in the House.—The Underwood bill was reported to the House on April 22, and after five days of general debate, consideration of the measure paragraph by paragraph under the five-minute rule was begun

on the 29th. The Democrats were solidly united in support of the bill; the opposition of the minority, on the other hand, was discordant and ineffective. During the first two days of debate in committee the Republicans and Progressives offered many amendments to the chemical, earthenware, and metal schedules; the Democrats rejected by an overwhelming vote every proposal of the minority and permitted only a few minor alterations in rates and phraseology recommended by members of the Committee on Ways and Means. Thenceforth the Republicans and Progressives abandoned hope of amending the bill and offered only perfunctory opposition to the few important provisions which had been the subject of controversy in the Democratic caucus. An amendment to strike out the clause admitting sugar to the free list after May 1, 1916, proposed by Mr. Mann, was defeated on May 1 by a vote of 186 to 88. On the 2d Mr. Gardner (Mass.) and Mr. Green (Ia.) urged a substitute for the cotton schedule on which the Republicans did not challenge a division. The wool schedule, reached the following day, was more vigorously opposed, but the Republicans were able to secure only 74 votes to 193 for a substitute offered by Mr. Payne (N. Y.) which proposed a rate of 15 per cent. on raw wool and comparative rates based on a duty of 18 cents a pound on the wool content of various stages of manufactured wool.

In the tariff schedules of the bill the few unimportant changes admitted were made on the recommendation of the Committee on Ways and Means. The same deference to the wishes of the Committee was paid in the debate on the income-tax section on May 6. Republicans, Progressives, and Democrats united in a demand for a reduction of the limit of exemption on individual incomes, but the majority adopted only a few minor changes proposed by Mr. Hull (Tenn.), the author of the law.

On May 8 the House rejected motions by Mr. Payne and Mr. Murdock to recommit the bill to the Committee on Ways and Means with instructions to report a provision for the creation of a non-partisan tariff commission, and passed the Underwood bill by a vote of 281 to 139. Of the 433 members of the House all but 12 were present and only one member, Copley of Illinois, failed to record his vote. The majority comprised 274 Democrats, two Republicans (Cary and Stafford, both of Wisconsin), four Progressives (Kelly and Rupley of Pennsylvania, Nolan of California, and Bryan of Washington), and one Independent (Kent of California). Against the bill were recorded 120 Republicans, 14 Progressives, and five Democrats (Broussard, Dupré, Morgan, and Lazaro, all of Louisiana, and Smith of New York).

The Bill in the Senate Committee on Finance.—While the Underwood bill was pending in the House, the Senate Committee on Finance rejected by a strict party vote on April 22 a proposal to conduct public hearings on the measure as submitted to the Senate. The stubborn fight on this question which began on the introduction of the bill in the Senate on May 9 was an earnest of the difficulties of the Democratic leaders during the next four months. Several Democratic Senators from the sugar- and wool-growing states favored a motion introduced by Senator Penrose (Pa.) to refer the bill to the Finance Committee with instructions to hold public hearings, and the Senate debated the question for a week before the Democratic leaders won over enough of the recalcitrants safely to challenge a vote. The proposal was rejected on May 16 by a vote of 41 to 36, the two Louisiana Senators, Ransdell and Thornton, voting with the Republicans, and Senator Poindexter (Wash.), the Progressive, with the Democrats.

Although the Committee on Finance declined to hold public hearings on the tariff schedules, the three subcommittees of the Democratic majority among which the different schedules and sections of the bill were distributed for detailed consideration were occupied during nearly the whole of May with private hearings granted to protesting manufacturers and producers. The sub-committees began their revision of the schedules on May 28, and on June 20 the Finance Committee reported the

bill to the Senate Democratic caucus with over 300 changes in rates and important amendments in the income-tax and administrative sections. Discussion of the bill in caucus ended on July 7, and on the 11th the Finance Committee approved the further changes recommended by the caucus and reported the bill to the Senate. The formal report (Senate Rept. 80) was filed five days later.

In the tariff schedules the changes in the bill as passed by the House were for the most part in the direction of lower duties. The wood and tobacco schedules were retained intact; all the others were subjected to more or less extensive revision. Over 40 items were transferred from the dutiable to the free list, the most important being alizarin and derivatives; bagging; wool blankets; text books; cast-iron pipe; sugar machinery; cement; eggs; flax, tow, and hemp; fur skins; explosives; indigo colors; pig, wrought, and scrap iron, slabs, blooms, etc., and ferromanganese; asphalt and bitumen; steel ingots; cattle, sheep, and other food animals; and wheat (subject to countervailing duty). On the other hand, a duty of one-tenth of a cent per pound was placed on bananas, oatmeal and rolled oats were restored to the dutiable list, and potatoes were made subject to a countervailing duty. The few increases in rates were chiefly in the chemical, cotton, and silk schedules; on a number of items in the silk schedule, equivalent specific duties were substituted for ad valorem rates. The spirit schedule repealed the exemption from the excise tax granted by the McKinley Tariff of 1890 to wine spirits or grape brandy used in the fortification of sweet wines, and imposed a tax of $1.10 per gallon.

The Finance Committee submitted with their report new calculations of imports and revenue under the rates proposed in the House bill. They estimated the value of total imports under the House bill at $925,286,426, the value of free imports at $103,000,327, and the customs receipts at $257,583,768, an average rate of duty of 27.84 per cent. Under the bill as reported to the Senate, they estimated, the value of total imports would be increased to $928,911,675, but an increase in the value of free imports to $147,367,238 would reduce the customs receipts to $247,780,723, an average rate of duty of 26.67 per cent. The Finance Committee proposed to make up the revenue sacrificed by reductions in duties by the restored tax on wine spirits, estimated to yield about $7,000,000, an extension of the income tax to individual incomes between $3,000 and $4,000 per year, and a tax on contracts for the future delivery of cotton, estimated to yield about $5,000,000 per year. The reduction of the limit of exemption on individual incomes from $4,000 to $3,000 affected only single persons. The amendment adopted by the Finance Committee on June 19 separated the incomes of husband and wife; allowed on account of marriage an additional exemption of $1,000 to either husband or wife when living together, but not to both; and allowed also an additional exemption of $500 for one minor child and up to $1,000 for minor children living with and dependent upon either parent. To obviate constitutional objections to the assessment of the tax on incomes accrued before the proclamation of the Sixteenth Amendment, it was provided that the tax should be assessed for the last ten months of 1913 and annually thereafter. To the classes of corporations exempted from taxation were added business leagues, chambers of commerce, boards of trade, and civic leagues organized exclusively for the promotion of social welfare.

The Finance Committee rejected as too drastic many of the new administrative provisions of the House bill. They eliminated the dumping clause and the clause giving the Secretary of the Treasury the right to determine without appeal the existence or nonexistence of a foreign market; and vetoed the proposal to empower the Secretary of the Treasury to exclude the goods of foreign exporters or manufacturers refusing to open their books to the examination of his agents. The proposed discount of five per cent. from the duties levied on goods imported in American bottoms was rejected as in contravention of a score of commercial treaties. The

chief administrative provision added by the Committee empowered the President to impose specified retaliatory rates against countries discriminating against the exports of the United States or refusing to enter into reciprocal trade relations on certain specified articles, the most important of which were fish, wheat, flour, coffee, tea, earthenware, wines, and malt liquors, silk dress goods, leather gloves, jewelry, sugar, and molasses.

The Senate Democratic Caucus.—The tariff bill approved by the caucus of the Senate Democrats was fundamentally identical in policy with the House measure. But the bill did not have in all respects in the Senate the same invincible party backing as in the House. The influence the Administration exercised successfully on most of the Democratic Senators failed to subdue the opposition of a small minority to the President's free-sugar and free-wool provisions. Five Senators voted against both these provisions on June 25, Newlands (Nev.), Ransdell (La.), Thornton (La.), Shafroth (Col.), and Walsh (Mont.); besides, Senator Hitchcock (Neb.) voted against free sugar, and Senator Chamberlain (Ore.) against free wool. Against an opposition sufficiently large to overturn the small Democratic majority in the Senate the party leaders forebore to attempt to pass a resolution binding the Democratic Senators absolutely to support the bill. Instead, the final resolution adopted on July 7 declared the bill to be a party measure and "urged" the undivided support of the party in the Senate. The resolution was supported by 45 Senators; Senator Newlands cast a single dissenting vote, and Senators Thornton, Ransdell, and Shafroth refrained from voting. Senators Newlands and Shafroth declared that they would vote for the bill on final passage but declined to be bound by caucus action. The two absentees, Senators Hitchcock and Culberson (Tex.), were counted with the majority. The bill was reported to the Senate, therefore, with a majority of only two pledged to its support.

The Tax on Cotton Futures.—The principal contribution of the caucus to the revision of the bill was the amendment imposing a stamp tax on contracts for the future delivery of cotton. This clause, proposed by Senator Clarke (Ark.) and adopted by the caucus with certain modifications by the Finance Committee on July 1, was designed to eliminate speculation in cotton. It provided that sales or agreements to sell or purchase cotton for future delivery in conformity with the rules of cotton exchanges, boards of trade, or similar associations should be subject to a tax of one-tenth of a cent per pound, to be paid by the affixing of stamps to every contract, the amount of the tax to be refunded on actual delivery of the cotton covered by the transaction. The tax was made applicable also to orders transmitted from the United States to foreign countries.

Mr. McReynolds' Excise Tax on Tobacco.—The caucus rejected on July 2 another tax plan, proposed by Senator Hitchcock (Neb.) on the inspiration of Attorney-General McReynolds, designed to protect independent tobacco manufacturers against the unfair competition alleged against the concerns formerly combined in the American Tobacco Co. Mr. McReynolds has maintained since the dissolution of the Tobacco Trust that the plan approved by the U. S. Circuit Court in New York was a subterfuge and left conditions in the tobacco industry practically unchanged. He urged the insertion of a provision in the tariff bill levying a special graduated excise tax on the production of tobacco, cigars, cigarettes, and snuff by any one concern above certain specified limits, the plan proposed affecting about seven large companies.

The Bill in the Senate.—After three days of general debate, the Senate began consideration of the bill in committee on July 23. During the first fortnight of debate the Democratic leaders avoided a test of their uncertain party support by passing over for subsequent consideration the controversial items in the tariff schedules. The many votes forced by the Republicans, however, showed that the minority, through an irreconcilable division between the "stand-pat" and progressive elements, were

unable to take advantage of the precarious situation of the Democratic majority. Half a dozen progressive Republicans voted regularly with the Democrats in favor of tariff reductions and gave the Democrats a majority of at least ten on nearly all divisions. Accordingly, in the middle of August, although the nominal Democratic majority was reduced to five by the death of Senator Joseph F. Johnston of Alabama on Aug. 8, Senator Simmons began to hasten the progress of the bill. The Finance Committee amendment placing cattle on the free list was sustained on Aug. 12 by a vote of 38 to 31, and two days later free wheat was approved by 37 to 32. On the 16th the amendment imposing a duty on bananas was passed by a vote of 31 to 28. In the debate on the sugar schedule on Aug. 19 all the Democrats except the Louisiana Senators, Ransdell and Thornton, who voted with the Republicans on nearly every important division in the Senate, supported the Administration programme for free sugar in 1916. An amendment offered by Mr. Bristow (Kans.) for a gradual reduction of duty from the existing rate of $1.90 per hundredweight, which would have amounted in six years to 62½ cents, was defeated by 39 to 34. The Senate adopted, however, a clause proposed by Mr. Bristow to abolish immediately the Dutch standard color test for sugar, which was held to give results strongly in favor of the refiners. The wool schedule was disposed of on Aug. 23, the Republicans reserving their substitute proposals until the debate on third reading; and on the 25th the Senate completed the revision of the tariff schedules by the approval of the free list.

The opening of debate on the income-tax section revealed the first symptoms of serious insurgency in the ranks of the majority. The arguments of the progressive Republicans on a number of amendments increasing the surtax on large incomes, rejected by the aid of regular Republican votes on Aug. 26 and 27, created a strong sentiment for further revision of the bill along these lines among the more progressive Democrats. On the 28th Senator La Follette proposed an amendment levying a surtax of one per cent. on incomes between $10,000 and $20,000; of one-half of one per cent. additional on each $10,000 up to $50,000; of one per cent. additional on each $10,000 between $50,000 to $100,000; and of ten per cent. on incomes above $100,000. Twelve Republicans joined the Democrats to defeat this amendment by a vote of 43 to 17; it was supported, however, by Senator Vardaman (Miss.), and the Democratic leaders were able to prevent further defections only by an agreement to submit the question of increasing the rates on large incomes to a party conference. A Democratic caucus on Sept. 5 adopted an amendment imposing a normal tax of one per cent. on incomes between $3,000 and $20,000 and surtaxes as follows: one per cent. between $20,000 and $50,000; two per cent. between $50,000 and $75,000; three per cent. between $75,000 and $100,000; four per cent. between $100,000 and $250,000; five per cent. between $250,000 and $500,000; and six per cent. above $500,000. The Senate approved this amendment, with the other changes in the House bill proposed by the Finance Committee on Sept. 6.

Senator Hitchcock returned to the attack on trusts on Aug. 27 with an amendment to the corporation tax law extending to all corporations the principles of the scheme for the taxation of large tobacco companies rejected by the Democratic caucus. It proposed a tax of five per cent., or five times the normal corporation tax, on the income of any concern producing or selling from one-quarter to one-third of the total amount of any given line of production, ten per cent. on concerns producing or selling from one-third to one-half of the total, and 20 per cent. on concerns producing or selling over one-half of the total, provided the concern had a total capital of over $50,000,000 and an annual product valued at more than $10,000,000. The Senate rejected the proposal on the 29th by a vote of 41 to 31.

With the approval of the Committee amendments for the taxation of cotton futures and wine spirits on Sept. 6, the bill was reported from

committee. In two days of final debate the Senate dealt with a flood of amendments, most of which had been once proposed and rejected in committee. On Sept. 8 Senator La Follette offered a substitute wool schedule providing for a general cut in the existing rates based on a gradual reduction of the duty on raw wool from 30 per cent. in 1914 to 15 per cent. in 1916; this amendment, rejected by a vote of 41 to 28, and another rejected amendment offered by Mr. Penrose (Pa.) proposing a substitute schedule based on specific duties of seven to 18 cents per pound on wools of different classes, were the extent of the postponed Republican fight on free raw wool. The bill was passed by the Senate on Sept. 9 substantially as reported by the Finance Committee. The final vote was 44 to 37, Senators La Follette and Poindexter voting with the Democrats and Senators Ransdell and Thornton with the Republicans.

The Bill in Conference.—The Senate returned the bill to the House with 674 amendments. It was sent to conference on Sept. 11, and on the 26th the Democratic conferees signed a report disposing of all the points of difference save one—the tax on dealings in cotton futures. The House conferees accepted 427 of the Senate amendments without change; compromises were reached on 96; and from the rest the Senate conferees receded. The Senate amendments abandoned in conference included those placing a duty on bananas, imposing an excise tax on wine spirits; changing ad valorem to specific duties in the silk schedule, and authorizing the President to impose countervailing duties. One of the important compromises affected the income-tax section; the House conferees accepted the new surtax schedule and the new exemption limit of $3,000 with $1,000 additional on account of marriage, but rejected the further exemption for minor children. Another compromise was effected on the House provision for a discount of five per cent. on duties on goods imported in American bottoms; the section was restored with the proviso that it should not be construed to conflict with existing treaties. In most important particulars, however, the conference report confirmed the changes made by the Senate.

The Final Passage. — The House adopted the conference report on Sept. 30 by a vote of 255 to 104; four Democrats were recorded in opposition, and two Republicans, three Progressives, and the single Independent voted with the majority. By a vote of 203 to 137 the House receded from its disagreement to the Clarke cotton-futures amendment, and substituted by a vote of 171 to 161 the so-called Smith-Lever amendment, the adoption of which the House managers had sought to secure in the conference. The Smith-Lever plan was urged by Mr. Underwood on the suggestion of the President as a means of eliminating speculation in cotton futures without destroying the legitimate business of cotton exchanges. It applied to all purely speculative trading the tax proposed in the Clarke amendment, but reduced the tax to the nominal sum of 50 cents per 100 bales on contracts rigidly conforming, through the specification of certain provisions, with the Government's standard of cotton grading. The Senate Democrats in caucus on Oct. 1 resolved to stand by the conference report, to recede from the Clarke amendment, and to reject the Smith-Lever substitute. This programme was carried out in the Senate on the 2d; the conference report was approved by a vote of 36 to 17 and the cotton-futures tax was abandoned without a division. On Oct. 3 the House sustained a motion by Mr. Underwood to recede from the Smith-Lever amendment, and with a second approval of the conference report the Underwood Tariff Act was enacted into law.

President Wilson signed the bill at 9:09 o'clock p.m. on Oct. 3. To the specially invited audience of party leaders he said:

> We have set the business of this country free from those conditions which have made monopoly not only possible, but in a sense easy and natural. But there is no use taking away the conditions of monopoly if we do not take away also the power to create monopoly; and that is a financial, rather than a merely circumstantial and economic, power.
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> The power to control and guide and

direct the credits of the country is the power to say who shall and who shall not build up the industries of the country, in which direction they shall be built, and in which direction they shall not be built. We are now about to take the second step, which will be the final step in setting the business of this country free. That is what we shall do in the Currency bill which the House has already passed and which I have the utmost confidence the Senate will pass much sooner than some pessimistic individuals believe.

With the exception of a few clauses the Act went into effect immediately. The wool schedule did not become effective until Jan. 1, 1914, although raw wool was admitted free from Dec. 1, 1913. The reduced rates in the sugar schedule go into effect on March 1, 1914.

Imports in American Bottoms.—Immediately after the passage of the Tariff Act several foreign Governments having commercial treaties with the United States lodged protests with the Department of State against the clause discriminating in favor of American shipping by allowing a discount of five per cent. from the duties on imports in American bottoms. A number of the Administration leaders urged the repeal of the provision, but Mr. Underwood, the author of the discriminating clause, declined to sanction its reconsideration. The Attorney-General, however, advised the Treasury Department that the clause could not be made operative without impairing the treaty obligations of the United States toward 23 foreign nations, whose shipping was guaranteed equal rights with that of the United States. The Secretary of the Treasury accordingly issued instructions to collectors of customs on Nov. 8 to make no allowances of discount under the Act.

THE FEDERAL RESERVE ACT

Preparation of Currency Legislation.—The reform of the banking and currency system, the second of the major items of the Democratic programme, was undertaken without the elaborate preparation of the revision of the tariff. The Underwood bill in its essential features represented the convictions of a united party, formulated during weeks of patient inquiry and offered to Congress with the concurrence of the House Committee on Ways and Means and the Senate Committee on Finance. The currency bill, on the other hand, was strictly an Administration measure, representing the theories of a few individuals. Thus, the tariff measure was enacted without essential change, while the currency legislation, supported by less coöperative effort, suffered from the conflict of theories within the Democratic party.

During the final session of the Sixty-second Congress a Democratic sub-committee of the House Committee on Banking and Currency, under the Chairmanship of Carter Glass (Va.), began the accumulation of expert opinion on banking and currency reform. On the invitation of this committee a score of authorities on finance were given an opportunity to present their views in a series of hearings begun on Jan. 6 and continued at intervals to the close of the session. In the early weeks of the first session of the Sixty-third Congress the attention of both houses was concentrated on the revision of the tariff. The possibility of currency legislation in the extra session, in fact, was not seriously considered until the House had disposed of the Underwood bill early in May. The suggestion came from the President on May 8, in response to an inquiry from Mr. Underwood as to what the House should do while the tariff bill was under consideration in the Senate, and the drafting of a currency measure was undertaken forthwith. The House Committee on Banking and Currency was not yet organized; the Senate Committee had scarcely met. The Senate on May 22 authorized the Committee on Banking and Currency to hold hearings on the proposed legislation, but the tariff bill and the lobby inquiry limited the immediate activity of the Committee to the issue of a *questionnaire* to bankers and financial experts. Hence, the measure presented to Congress was almost wholly the result of the collaboration of Senator Robert L. Owen and Carter Glass, the chairmen of the Senate and House Committees on

Banking and Currency, Mr. McAdoo, the Secretary of the Treasury, and President Wilson.

The President's Currency Message.—President Wilson's message on currency reform was delivered in person in joint session of the two houses of Congress on June 23. He urged the immediate necessity of giving "the business men of this country a banking and currency system by means of which they can make use of the freedom of enterprise and of individual initiative" about to be bestowed upon them by the prospective tariff changes.

> We are about to set them free; we must not leave them without the tools of action when they are free. . . . One of the chief things business needs now and will need increasingly as it gains in scope and vigor in the years immediately ahead of us is the proper means by which readily to vitalize its credits, corporate and individual, and its originative brains. . . . The tyrannies of business, big and little, lie within the fields of credit. . . . It is perfectly clear that it is our duty to supply the new banking and currency system the country needs, and it will immediately need more than ever. . . .
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> The principles on which we should act are also clear. The country has sought and seen its path in this matter within the last few years, sees it now more clearly than it ever saw it before, much more clearly than when the last legislative proposals on the subject were made. We must have a currency, not rigid as now, but readily, elastically responsive to sound credit, the expanding and contracting credits of everyday transactions, the normal ebb and flow of personal and corporate dealings. Our banking laws must mobilize reserves, must not permit the concentration anywhere in a few hands of the monetary resources of the country or their use for speculative purposes in such volume as to hinder or impede or stand in the way of other more legitimate, more fruitful uses. And the control of the new system of banking and issue which our new laws are to set up must be public, not private, must be vested in the Government itself, so that the banks may be the instruments, not the masters, of business and of individual enterprise and initiative.

The Owen-Glass Bill.—The Federal Reserve Act was introduced on June 26, in the Senate by Senator Owen (S. 2639) and in the House by Mr. Glass (H. R. 6454). The defects of the existing system, the chief of which are outlined on another page (see XIV, *Banking and Currency*), were clearly defined in the elaborate inquiry of the National Monetary Commission which ended its labors in 1912. That Commission recommended the establishment under a Federal charter of a central reserve bank with branches in 15 districts, to be owned and controlled by the subscribing banks, which should act as the fiscal agent of the Government, accept deposits from subscribing banks, rediscount commercial paper, and issue currency to replace the existing national-bank circulation (*A. Y. B.*, 1911, pp. 304-7; 1912, p. 346). In the estimation of many bankers and economists, the plan offered a satisfactory means of providing an elastic currency and of mobilizing reserves. The Democrats, however, repudiated the principle of centralized control by banking interests as the invention of the "money trust." Their theory, as defined in the President's message, considered the banks as public utilities over which the representatives of the people should retain ultimate control. Hence, the fundamental principle of the Owen-Glass bill was the decentralization of the system so far as bankers were directly concerned, and the establishment of complete government control through a board from which the representation of banking interests should be absolutely excluded.

Organization of Federal Reserve Banks.—The bill proposed to divide the continental United States into at least 12 districts, determined by the convenience and customary course of business of the community, and to create in a reserve city in each district a Federal reserve bank, to be incorporated under a Federal charter for a period of 20 years. It required each national bank in the district, subject to the penalty of dissolution, to subscribe to the capital stock of the Federal reserve bank a sum equal to 20 per cent. of its unimpaired capital, one-half to be paid in and the remainder to be subject to call; the capital of the Federal reserve bank, in no case to be less than $5,000,000 paid-up and unimpaired, should be increased or decreased with the capital of the subscribing banks and the shares should not be subject to transfer or hypothecation. For each Federal reserve bank was prescribed a board of nine directors, three chosen by the subscribing banks as their representatives, three chosen by the

banks as representatives of the commercial, agricultural or industrial interests of the district, and three nominated by the Federal Reserve Board, one of whom, designated as "Federal reserve agent," should be the official representative of the Federal Reserve Board, and *ex officio* chairman of the board of directors; the term of office was fixed at three years, one director of each class retiring each year. State banks and trust companies with capital sufficient to entitle them to become national banks under the provisions of the National Banking Act were declared eligible, on the authorization of the holders of 51 per cent. of their stock and with the approval of the Comptroller of the Currency, to become national banks; or, subject in each case to the approval of the Federal Reserve Board, to become stockholders in the Federal reserve banks with the same obligations and privileges as national banks. Under regulations to be established by the Federal Reserve Board, Federal reserve banks were empowered to establish branch offices in their respective reserve districts to the number of one for each $500,000 of the capital of each bank.

The Federal Reserve Board.—For the direction and control of the system the bill created a Federal Reserve Board of seven members, the Secretary of the Treasury, the Secretary of Agriculture and the Controller of the Currency *ex officio*, and four members appointed by the President with the approval of the Senate for terms of eight years, one to retire biennially, at an annual salary of $10,000. Of the appointed members it was provided that one should be a person experienced in banking but that none should act as a director of any banking institution or Federal reserve bank during the term of his appointment. The chairmanship of the Board was vested in the Secretary of the Treasury *ex officio;* under his supervision one of the appointed members was to be the active managing officer with the title of "governor" of the Federal Reserve Board. For its expenses the Board was empowered to levy on the Federal reserve banks in proportion to their capital.

The administrative powers of the Federal Reserve Board were defined as follows:

To examine at its discretion the accounts, books and affairs of each Federal reserve bank and to require such statements and reports as it may deem necessary.

To require or on application to permit a Federal reserve bank to rediscount the paper of any other Federal reserve bank.

To suspend for a period not exceeding 30 days (and to renew such suspension for periods not to exceed 15 days) any and every reserve requirement specified in the Act.

To supervise and regulate the issue and retirement of Treasury notes to Federal reserve banks.

To require the removal of officials of Federal reserve banks for incompetency, dereliction of duty, fraud or deceit.

To require the writing off of doubtful or worthless assets upon the books and balance sheets of Federal reserve banks.

To suspend the further operations of any Federal reserve bank and appoint a receiver therefor.

Functions of Federal Reserve Banks.—Within a year of the passage of the Act the bill directed the deposit in Federal reserve banks of all moneys held in the general fund of the United States; thereafter the Federal reserve banks should act as the fiscal agents of the United States, receiving on deposit all revenues and making disbursements on check drawn against the Government deposits, on which interest should be paid at the discretion of the Secretary of the Treasury. Every national bank was required, within 60 days of the establishment of a Federal reserve bank in its district, to deposit therein a sum equal to not less than three per cent. of its total demand liabilities exclusive of circulating notes, and after 14 months to increase and maintain its credit balance at not less than five per cent. of its demand liabilities; the deposits of national banks, on which no interest was to be paid, might be made in lawful money, national bank notes, Federal reserve notes, checks and drafts on solvent banks, or acceptances authorized under the Act.

The bill required every Federal reserve bank to receive on deposit at par and without charge for exchange or collection checks and drafts drawn upon any of its depositors, by any of its depositors upon any other depositor, or by any depositor in any other Federal reserve bank upon funds

credited therein. The Federal Reserve Board was directed to promulgate regulations to govern the transfer of funds at par between Federal reserve banks, and was empowered at its discretion to exercise the function of a clearing house for the Federal reserve banks and to require each Federal reserve bank to act as a clearing house for its member banks.

The Federal reserve banks were authorized to discount for member banks on their endorsement:

(1) Notes and bills of exchange of a character approved by the Federal Reserve Board, arising out of commercial transactions other than dealings in stocks and bonds, that is, paper issued or drawn for agricultural, industrial or commercial purposes, maturing at not more than 45 days, and notes and bills secured by bonds of the United States or any of its political subdivisions maturing at not more than four months; (2) Approved commercial paper maturing at between 45 and 120 days, not more than 50 per cent. for any one depositing bank at more than 60 days, provided the cash reserve of the rediscounting reserve bank exceeds 33⅓ per cent. of its total outstanding demand liabilities; (3) Acceptances based on the exportation or importation of goods maturing at not more than 90 days and endorsed by at least one member bank in addition to the acceptor, to an amount for any one member bank not in excess of 50 per cent. of its capital.

The Federal Reserve Board was empowered, when required by the public interest, at its discretion to authorize the reserve banks to discount the direct obligations of member banks, secured by the deposit of satisfactory securities, to an amount for each borrowing bank not exceeding 50 per cent. of its unimpaired capital. Subject to review by the Federal Reserve Board, each reserve bank was empowered to establish each week or oftener a minimum rate of discount for each class of paper.

The Federal reserve banks were further empowered: (1) under regulations to be prescribed by the Federal Reserve Board, to deal in the open market in bankers' bills, cable transfers and bills of exchange of the classes eligible for rediscount; (2) to deal in gold coin and bullion and to make loans thereon; (3) to invest in United States bonds and short-term obligations of the United States, and its dependencies, of the several states, and of any foreign Government; (4) to deal in bills of exchange payable in foreign countries, maturing at not more than 90 days, bearing the endorsement of a member bank and at least one other responsible party; (5) with the consent of the Federal Reserve Board, to establish agencies in foreign countries and through them to deal in foreign bills of exchange maturing at not more than 90 days and bearing the endorsement of at least two responsible parties.

From the net earnings of Federal reserve banks the bill provided that shareholders should receive a cumulative annual dividend of five per cent. on the paid-in capital; one-half of the balance should be paid to the Federal Government and the other half to a surplus fund until the accumulated surplus reached 20 per cent. of the paid-in capital, after which the entire excess of earnings over dividend charges should be paid to the Treasury of the United States.

Federal Reserve Treasury Notes.—The bill authorized an issue of Federal Reserve Treasury notes to the amount of $500,000,000 plus the amount of national-bank notes retired after the passage of the Act, to be obligations of the United States redeemable in gold on demand at the Treasury or at any Federal reserve bank and receivable for all taxes, customs and other public dues. On application of the board of directors, through the Federal reserve agent, accompanied by the tender to the Federal reserve agent of collateral security in the form of commercial paper acceptable for discount to the full amount of the note issue requested, the Federal Reserve Board was empowered to issue Federal Reserve Treasury notes to any Federal reserve bank, fixing the rate of interest to be paid by the Federal reserve bank, on the assets of which the Treasury notes so issued should become a first and paramount lien. A Federal reserve bank disbursing Treasury notes of this issue was required to segregate in its own vaults gold or lawful money equal in amount to 33⅓ per cent. of the notes paid out; it might be required, at the discretion of the Federal Reserve Board, to maintain on deposit in the Treasury gold or lawful money equal in

amount to five per cent. of the Treasury notes issued to it, but this sum should be counted as a part of the 33⅓ per cent. reserve required on notes disbursed. The liability of a Federal reserve bank for outstanding Federal Reserve Treasury notes might be reduced at any time, and a corresponding part of the collateral security and reserve released, by the deposit in the Treasury or with the Federal reserve agent of Treasury notes, other lawful money, or gold bullion.

Retirement of National Bank Circulation.—From the passage of the Act the bill limited the note issue of national banks to the amount outstanding at the passage of the Act, and provided that national-bank circulation withdrawn in the manner prescribed by law should not be reissued. It provided for the gradual retirement of national bank circulation by authorizing the Secretary of the Treasury to exchange for the two per cent. bonds deposited as security for circulating notes three per cent. bonds of the United States without circulation privilege maturing in 20 years and exempt from Federal, state and local taxation. The amount of two per cent. bonds for which a national bank could apply for exchange in any year, except with the consent of the Secretary of the Treasury, was limited to five per cent. of the amount on deposit at the passage of the Act. In proportion as the two per cent. bonds were thus refunded, the power of national banks to issue bond-secured currency should cease; they could, however, continue to issue circulating notes to the amount secured by the deposit of two per cent. bonds for a period of 20 years from the passage of the Act, but they were forbidden to make use of any substitute for circulating notes in the form of clearing-house certificates, cashiers' checks or other obligations not specifically provided for in the Act. At the end of 20 years from the passage of the Act, the bill provided that all outstanding two per cent. bonds should be exchanged for three per cent. bonds, and that all outstanding national bank notes should be recalled and redeemed within a period and under regulations to be prescribed by the Federal Reserve Board. The provision of the National Banking Act requiring newly organized National banks to deposit United States registered bonds with the Treasurer of the United States before commencing business was repealed.

Reserves of National and Federal Reserve Banks.—The reserves to be held by national banks after the establishment of Federal reserve banks in the respective districts were prescribed as follows:

1. For country banks, that is, banks outside existing reserve and central reserve cities, 15 per cent. of their aggregate deposits, made up of five per cent. in lawful money in their own vaults, and for 14 months three per cent. and thereafter five per cent. on deposit with Federal reserve banks; the remainder for 36 months might consist of balances due national banks in reserve or central reserve cities; thereafter the remainder should be held in lawful money or deposited in Federal reserve banks, except with the permission of the Federal Reserve Board to count as reserves balances on deposit with banks in reserve or central reserve cities.

2. For banks in reserve cities, 25 per cent. of their outstanding deposits for a period of 26 months, 22½ per cent. for a further period of 12 months, and 20 per cent. permanently thereafter; for 60 days 12½ per cent. of the reserve should be maintained in lawful money in their own vaults and thereafter 10 per cent. The remainder might be deposited with Federal reserve banks, or, for a period not exceeding 36 months, with a reserve agent in central reserve cities, the required deposits in Federal reserve banks, however, being obligatory.

3. For banks in central reserve cities, 25 per cent. of their outstanding deposits for a period of 14 months, 22½ per cent. for a further period of 12 months, and 20 per cent. permanently thereafter; for 60 days 20 per cent. of the reserve should be maintained in lawful money in their own vaults and thereafter 10 per cent.; the remainder might be kept either in their own vaults or with

the Federal reserve banks, the required deposit in Federal reserve banks, however, being obligatory.

As a further incentive to the retirement of national bank circulation, the bill repealed the provision of the National Banking Act permitting banks to count as a part of their lawful reserves the five per cent. fund deposited with the Treasurer of the United States for the redemption of circulating notes.

Federal reserve banks were required to maintain at all times in their own vaults a reserve in gold or lawful money of not less than 33⅓ per cent. of their outstanding demand liabilities.

Powers of National Banks.—Every national bank not situated in a reserve or central reserve city or any other city prescribed at the discretion of the Federal Reserve Board, was authorized to make loans maturing at not more than nine months on the security of improved and unencumbered farm land within its reserve district, of value not less than double the amount of the loan, to an aggregate amount equal to 25 per cent. of its capital and surplus or 50 per cent. of its time deposits. At the discretion of the Federal Reserve Board, national banks with a capital of $1,000,000 might be permitted to establish branches in foreign countries for the furtherance of the foreign commerce of the United States and to act, if so required, as the fiscal agents of the United States.

The Bill in the House Committee on Banking and Currency.—The consideration of H. R. 6454 in the House Committee on Banking and Currency followed the precedent established by the Committee on Ways and Means in dealing with the Tariff bill. The Democratic members formulated their amendments in secret conference and called the full Committee in consultation only for formal action on the final report.

The first result of the introduction of the Owen-Glass bill was an immediate drop in the price of Government two per cent. bonds, the investment value of which was seriously impaired by the partial withdrawal of the circulation privilege. The last previous sale of registered bonds, on June 13, was at 100½; the price bid gradually declined from 100 on June 27 to 98½ on July 11. Some change in the bill to protect the holders of these bonds was urgently demanded, and on July 9 the Secretary of the Treasury announced that an agreement had been reached with Mr. Glass and Senator Owen for an amendment removing the limitation on the power of the banks to issue circulating notes on the security of two per cent. bonds and restoring the full privileges of the existing law during the refunding period of 20 years. The amendment was approved by the Democratic members of the House Committee on July 15, and a further change in the provisions for refunding made the bonds outstanding at the end of the 20-year period redeemable in cash at par and accrued interest instead of in three per cent. bonds. Nevertheless the bonds continued to decline and on July 26 sold at 95½, the lowest point reached. On July 31 Mr. McAdoo announced the transfer of $25,000,000 to $50,000,000 of Treasury funds to facilitate crop movements to national banks in the West and South which had taken out at least 40 per cent. of their authorized circulation; as security for these deposits Government bonds would be accepted at par. The bonds responded immediately to this alleged device to restore their value, selling up to 98½ on Aug. 1.

On July 11 the majority sub-committee adopted an amendment providing that the ownership of the surplus funds accumulated from the earnings of Federal reserve banks should be vested in the Government instead of in the banks; the Government's share of these earnings, it was agreed on the 16th, should be devoted to a reduction of the bonded indebtedness of the United States. Mr. Wingo (Ark.) offered a resolution on the 17th that the deposit of Government funds in the regional reserve banks should be on a competitive basis; the amendment was rejected by a vote of eight to three, although the principle of competitive bidding for Government deposits was approved by the Democratic platform of 1912. The sub-committee on the same day struck from the bill the

clause permitting the discount by regional reserve banks of the direct obligations of member banks, and extended the maturity period of paper eligible for rediscount from 45 to 60 days. On the 21st the conference removed the limitation on the amount of the proposed issue of Federal reserve notes, but decided that the note issue thus made unlimited save by the requirements of business should be on a gold basis; it was provided, therefore, that the reserve of 33⅓ per cent. held by Federal reserve banks against note issues should consist of gold or gold certificates instead of "gold or lawful money" as provided in the bill.

Hitherto an outward semblance of harmony among the Democratic members of the Committee had been carefully preserved. It was destroyed at this point by an open revolt of the ultra-radical members, inspired from without the Committee by Mr. Henry (Tex.). During the early conferences differences of opinion among the members on the provisions of the Administration measure, instead of yielding to compromise, grew more pronounced; and with the alignment of the Democratic members of the Committee in two distinct and hostile groups, the consideration of the bill rapidly degenerated into a struggle between the insurgents on the one hand and, on the other, the less radical members, headed by Mr. Glass, who strove to protect the bill against what they believed to be useless or dangerous innovations. Among the House Democrats the most active and outspoken opponent of the Administration measure was Mr. Henry, the author of the original resolution directing the money-trust investigation. He demanded the postponement of currency legislation to a more searching inquiry into banking methods, and to that end introduced a resolution on July 12 directing the reopening of the money-trust investigation with enlarged scope. Although it was referred to his own Committee on Rules, the resolution was not reported. Nevertheless, Mr. Henry was able to influence the ultra-radicals in the Committee on Banking and Currency to endeavor to give effect in the Owen-Glass bill to the recommendations of the Pujo Committee. On July 18 an amendment offered by Mr. Bulkley (Ohio) to prohibit national banks from making loans in which officers or directors were in any way interested was defeated by a large majority; on the 23d the conference rejected a provision tantamount to a Federal guarantee of bank deposits offered by Mr. Wingo (Ark.); but the insurgents secured sufficient support to force the approval by a vote of seven to five of an amendment prohibiting the interlocking of directorates. Meanwhile Mr. Ragsdale (S. C.) had suffered defeat on the 22d on an amendment to make cotton warehouse receipts eligible for rediscount by Federal reserve banks and was definitely cast thereby into the ranks of the insurgents. Assured of the support of the ultra-radicals in the Committee on Banking and Currency, Mr. Henry prepared a substitute for the Owen-Glass bill which was offered in the conference by Mr. Ragsdale on July 24. Using the administration measure as a basis, Mr. Henry's bill embodied all the recommendations of the Pujo report, and to make "proper provision for the debtor classes and those who toil and produce and sustain the country," the Owen-Glass bill being written "wholly in the interests of the creditor class—the banking and fraternity and the commercial world," proposed an issue of currency based on warehouse certificates for cotton, corn and wheat. It was so patently destructive of the Administration measure that President Wilson intervened to subdue the insurgent movement, which, while it had not sufficient support to imperil the Owen-Glass bill, had already thrown into confusion the administration schedule for the passage of the measure through the House. On July 24 Mr. Wilson urged Mr. Henry to abandon his opposition to the Owen-Glass bill and to submit his proposals for the extension of agricultural credit to Congress in a separate measure. With the recalcitrants on the Committee the President attempted to deal individually but without conspicuous success. The President insisted, however, that absolute secrecy be preserved as to future conflicts and that the settle-

ment of the differences in the Committee be transferred to a caucus of the House Democrats; accordingly on July 28 the conference agreed to submit the bill to caucus on Aug. 11.

Notwithstanding the injunction of secrecy, the subsequent proceedings of the conference were currently reported in the press. They offered scant encouragement to the ultra-radicals in the House. To meet the criticism that the Federal Reserve Board composed exclusively of Presidential appointees would be amenable to political influences and wholly without qualification to regulate banking affairs, the conference adopted on July 31 an amendment offered by Mr. Glass providing for the creation of an advisory board of bankers, composed of one representative from each of the regional reserve banks, whose advice and recommendations the Federal Reserve Board might accept and request at its discretion. The conference on Aug. 1 reversed its action of July 23, struck from the bill the prohibition of interlocking directorates and rejected the Henry proposals for agricultural currency; on the same day amendments were adopted reducing the period for the maintenance of bank reserves at 25 per cent. from two years to 60 days, and providing for a division of the net profits of the Federal reserve banks above dividend requirements on the basis of 40 per cent. to member banks in proportion to their average annual balances, and 60 per cent. to the Government, to be used for the purpose of reducing outstanding bonded indebtedness. In the last session of the conference on Aug. 5 the Henry proposals were rejected a second time; the final amendments provided for bipartisan representation on the Federal Reserve Board by the requirement that not more than two of the appointive members should be chosen from one political party; and authorized national banks, with the approval of the Comptroller of the Currency, to organize and operate savings departments and to act as trustees for mortgage loans. After a month's strife the Democratic members of the Committee on Banking and Currency agreed to report the bill favorably to the House caucus by a vote of 11 to 3; the dissentients were Ragsdale (S. C.), Neeley (Kans.) and Eagle (Tex.), Mr. Wingo voting for the report with reservation of the right to offer amendments in caucus.

The House Democratic Caucus.— In the caucus of the House Democrats, to which the amended bill was submitted on Aug. 11, the insurgency within and without the Committee on Banking and Currency was finally suppressed and the party united in support of the Administration measure. President Wilson forestalled the radical demand for agricultural currency by the issue on the 13th of a statement that legislation providing agricultural credit facilities on a scale much more comprehensive than could possibly be secured by any amendment to the Owen-Glass bill would be introduced in the next session of Congress. Mr. Henry on the 20th offered his amendments to authorize the Federal reserve banks to rediscount notes or bills secured by warehouse receipts or liens on agricultural products, but the caucus rejected these and all similar proposals by overwhelming majorities. The sole concession to the radicals was an amendment adopted on Aug. 25 altering the language of the section excluding from rediscount privileges paper drawn for the purpose of carrying or trading in stock, bonds, "or other securities"; the last words were changed to "other investment securities" and a provision was inserted that nothing in the Act should be construed to render ineligible for rediscount "notes and bills of exchange secured by staple agricultural products or other goods, wares or merchandise." Mr. Neeley's amendment to prohibit interlocking directorates was excluded from the bill on the 22d by a resolution offered by Mr. Underwood and adopted by a vote of 130 to 60, referring this and all similar amendments to the House Committee on the Judiciary with instructions to prepare and report a separate bill for this purpose. Eleven amendments were adopted in caucus, the most important of which, besides those already referred to, abolished the clause requiring the Federal reserve banks to pay interest on Government deposits; reduced the reserves

of country banks from 15 to 12 per cent. and of reserve and central reserve city banks from 20 to 18 per cent.; further secured the gold basis for Federal reserve currency by requiring that the deposit in the Treasury of five per cent. of the amount of the outstanding notes which might be required of the regional reserve banks should be in gold instead of gold "or lawful money" as provided in the bill; made mandatory the admission of state banks to the system under regulations to be prescribed by the Federal Reserve Board; and extended the period of maturity of loans on farm lands from nine months to a year. On Aug. 28 the caucus adopted the Administration bill as a party measure by a vote of 160 to 9.

The Bill in the House.—The amended bill was reintroduced in the House as a new measure (H. R. 7837) by Mr. Glass on Aug. 29 and referred to the Committee on Banking and Currency. With one further minor amendment the bill was approved on Sept. 4 by a vote of 11 to one; with the exception of the single dissentient, Mr. Burke (Pa.), the Republicans refrained from voting. On the 9th Mr. Glass reported the bill to the House and four days of general debate began on the following day. Four days likewise were allowed for the consideration of the measure clause by clause. On the 15th the House rejected amendments to curtail the powers of the Federal reserve agent, to prohibit the directors of national banks from serving on the board of more than one bank or other financial institution, and to reduce the obligatory subscription to the capital stock of Federal reserve banks from 20 to 10 per cent. of the paid-up and unimpaired capital of national banks; and on the 17th, by a vote of 266 to 100, a motion by Mr. Walters (Pa.) to recommit the bill to the Committee with instructions to report a provision prohibiting interlocking directorates. The most important provision added in the House was adopted to meet the charge of the Republicans that the amendment making Federal reserve notes payable in gold "or lawful money" practically repealed the gold-standard law; by a vote of 298 to 69 the House approved a clause reaffirming the gold standard by providing that nothing in the Act should be construed to repeal the parity provisions contained in the Act of March 14, 1900. The House passed the bill on Sept. 18 by a vote of 286 to 84, 24 Republicans and 14 Progressives voting with the majority, and only three Democrats in opposition—Elder of Louisiana, Calloway of Texas, and Witherspoon of Mississippi.

The Bankers' Attitude—With the submission of the Owen-Glass bill to the House Democratic caucus, the banking interests took concerted action to urge upon Congress their objections to certain features of the measure. Hitherto the attitude of the bankers had been disclosed in individual expressions of opinion, and while the published criticisms ranged over all sections of the bill, they dealt, for the most part, with the general principles of the proposed legislation. The bankers approved the principle of asset currency and the creation of an organization for centralized control of reserves. With practical unanimity, however, they recommended that the new currency should be issued by the banks and not by the Federal Government, and demanded a reconstitution of the Federal Reserve Board to provide for the adequate representation of the banking interests and the elimination of the danger of political control inherent in the proposed method of appointment. The complete separation of banking management from bank ownership and its concentration in the hands of a commission without expert knowledge of banking problems and practices wielding the enormous powers of the Federal Reserve Board, they asserted, would deter national banks from entering the system, and since the banks were to be deprived of the privilege of issuing bond-secured currency, would influence them, in the absence of compensating advantages, to withdraw entirely from the national banking system and take out state charters. The bankers further criticized the dispersion of reserves among 12 regional reserve banks, the result of which would be, they declared, to make it difficult for large borrowers in the natural centers of trade to obtain accommodations. The country

bankers particularly protested against the withdrawal of the privilege of maintaining a part of their reserves on deposit with correspondents in reserve cities, and the entire profession united in a demand for a general lowering of the reserve requirements.

The House Committee on Banking and Currency, it will be seen, showed some disposition to meet these criticisms, but their amendments were only on minor points and left the bill essentially unchanged. On Aug. 22-23 a conference of the Currency Commission of the American Bankers' Association and representatives of the 47 state bankers' associations and the 191 clearing-house associations of the country was held in Chicago. This conference united in recommending a large number of changes in the bill, of which the following were the most important:

That there should be established one central Federal reserve bank instead of 12, and if this is found inexpedient, the number should not exceed five, with as many branches as may be required in every part of the country.

That membership in the Federal reserve banks be made voluntary instead of compulsory on the part of national banks.

That the subscription to the capital stock of the Federal reserve banks be reduced from 20 to 10 per cent. of the capitalization of banks applying for membership.

That in order to remove the control of the Federal reserve banks from political influence, direction of the institution be vested in a board of seven members, composed of the Secretary of the Treasury *ex officio;* three members to be appointed by the President with due regard to the geographical territory; and three members to be selected by the directors of the Federal reserve banks.

That the authority of the Federal Reserve Board to compel one member bank to rediscount paper of another member bank be made optional instead of mandatory.

That the cumulative dividends allowed member banks on their shares in the Federal reserve banks be increased from five to six per cent.

That the country bank's required reserve be reduced from 15 to 12 per cent. and that not less than four per cent. be kept in the bank vault, not less than four per cent. deposited with the Federal reserve bank, and the remainder with a correspondent.

That the reserve city banks' required reserve be fixed at 18 per cent. instead of 20 and 25 per cent. as by the former variable scale; of this six per cent. is to remain in vault, six per cent. in a Federal reserve bank, and six per cent. with a correspondent in a central reserve city.

That the central reserve city banks' required reserve, which varies from 20 to 25 per cent., be fixed at 20 per cent., 10 per cent. in the vault and 10 per cent. in the Federal reserve banks.

That the time limit on farm loans be extended from nine to 12 months.

That the section of the bill relating to savings departments be stricken out.

These recommendations formed the basis of practically all the testimony offered in the hearings held by the Senate Committee on Banking and Currency (see *infra*); they were reiterated again and again not only by the special committee entrusted with their presentation, for whom the hearings were primarily opened, but also by the bankers representing all sections and all classes of institutions, who appeared subsequently before the Committee either by invitation or on their own initiative. During the following weeks the recommendations were endorsed in whole or in part by scores of state bankers' associations, clearing-house associations and commercial organizations, and they were reaffirmed with one dissenting vote in the annual meeting of the American Bankers' Association held in Boston during the week of Oct. 6.

The most important feature of the meeting of the American Bankers' Association was the unanimous adoption by the 2,000 country bankers in attendance of resolutions of protest against a few of the provisions of the Owen-Glass bill especially affecting country business. Hitherto the sponsors of the bill in Congress had maintained that the opposition attributed to the country banks was invented to serve the interests of the larger institutions. The points covered by the emphatic repudiation of this theory by the country bankers in Boston were subsequently urged upon the Senate Committee on Banking and Currency.

The Senate Hearings.—Having intervened successfully to expedite the passage of the bill by the House, President Wilson was called upon early in August to deal with certain symptoms of recalcitrancy in the Senate. A few of the Senate Democrats, of whom the most outspoken was Senator Hitchcock (Neb.), objected to the consideration of currency legislation in the extra session and urged

the adjournment of Congress on the passage of the Tariff bill. The President's insistence secured the adoption in caucus on Aug. 14 of a resolution "to consider and determine legislation concerning currency and banking immediately following the passage of the pending bill," so drawn, however, as not to bind the party to support of the House measure.

The Senate Committee on Banking and Currency decided on Aug. 26 to permit the representatives of the bankers to present the recommendations adopted at the Chicago conference in a series of public hearings beginning on Sept. 2. Once begun the hearings were extended far beyond the original purpose. Besides the official spokesman of the bankers, the Committee invited the attendance of scores of bankers and financial experts from all parts of the country, and through the determined opposition to hasty action on currency legislation of three of the Democratic members, Senators Hitchcock (Neb.), Reed (Mo.) and O'Gorman (N. Y.), the hearings were continued from week to week. This procedure was exceedingly disappointing to the President. Shortly after the hearings were begun he called upon Senator Kern, as chairman of the Democratic "steering committee" to expedite the course of the Currency bill in the Senate. In signing the Tariff bill on Oct. 3, the President again urged upon the Democratic leaders his demand for currency legislation in the extra session. The best the Administration supporters could obtain, however, was an agreement to conclude the hearings on or before Oct. 25, and neither the influence which the President brought to bear on individual members of the Committee nor the threat of a Democratic caucus or of a motion to discharge from further consideration of the bill was able to accelerate Committee action.

The Bill in the Senate Committee on Banking and Currency.—The result of the Senate hearings was an irreconcilable schism in the Committee on Banking and Currency on the fundamental principle of regional reserve control. On the one side the supporters of the Administration were committeed to the dispersion of reserves among a large number of regional banks for the purpose of destroying the "money trust" and ending all connection between banking and large speculative operations on stock exchanges; on the other, the five Republicans and Senator Hitchcock insisted that the dispersion of reserves would destroy the borrowing power of legitimate business and under the proposed system of control would promote competition instead of coöperation in times of financial stress. Indeed, among the opponents of the Administration plan there was a strong sentiment in favor of the establishment of a central bank, and at their invitation Frank A. Vanderlip, president of the National City Bank of New York, and Jeremiah W. Jenks, professor of economics in New York University, submitted elaborate plans for the establishment of a central institution under complete Government control with regional branches in place of the Federal Reserve Board and regional reserve banks. The proposal for a central bank was put forward at the opening of the Committee's formal deliberations on the bill on Oct. 28 and divided the Committee six to six. After a day's fruitless debate the Committee abandoned all effort to dispose of the plan and proceeded to develop the conflicting proposals along parallel lines. The President on Oct. 24 emphatically repudiated the central-bank scheme and reiterated his endorsement of the original measure. Nevertheless, the Democratic members of the Committee showed a disposition early in the deliberations to concede a considerable reduction in the number of regional reserve banks, and in view of this practical advantage the advocates of the central bank eventually abandoned, at least in form, that doubtful issue.

The Committee on Oct. 29 agreed that the membership of the Federal Reserve Board should be increased from seven to nine and that the Secretary of Agriculture and the Comptroller of the Currency should be relieved from service thereon. It was proposed to eliminate from the Board the Secretary of the Treasury also; on Nov. 7 the Committee rejected this proposal by a vote of nine to

three, but refused at the same time by a vote of eight to four to reconsider the elimination of the other *ex officio* members. On Nov. 6 the Committee by a vote of seven to five decided to alter the mode of selection of the directors of the Federal reserve banks, making five appointive by the Government and four elective by the member banks. By a vote of eight to four the provision of the Administration measure making the Federal reserve notes obligations of the Government was sustained, but they were made redeemable in gold only instead of in gold "or lawful money" as provided in the House bill.

But the Committee was occupied almost exclusively with the member and capitalization of the regional reserve banks. On Oct. 31 the number of Federal reserve banks was reduced from 12 to four by a vote of seven to five, Senators Hitchcock and O'Gorman voting with the Republicans; a proviso was added, however, by a vote of 10 to two, that after two years the Federal Reserve Board might increase the number at its discretion to a maximum of 12. Senator Hitchcock on Oct. 1 offered a proposal that the entire regional reserve system be capitalized at $100,000,000, to be underwritten by the banks and sold by them to the public, and that the entire capital should be placed under the absolute control of the Federal Reserve Board for distribution among the regional banks as conditions warranted. He was supported by only Senators Bristow (Kans.), Nelson (Minn.) and McLean (Conn.), and the proposal was rejected by a vote of seven to four. Senator O'Gorman, who led the opposition, suggested that the regional banks should be capitalized at 10 per cent. of the national-bank capital of their respective districts, to be secured in either one of two ways: first, by requiring the banks to underwrite the stock and dispose of it to the public, or, second, by opening the stock issue to equal participation by the banks and the public. On the 6th the first of these alternative methods was approved by a vote of seven to five, and an agreement was reached that the capital of the regional banks should be six per cent. of the combined capital and surplus of the member banks, to be fully paid in within two months of organization. In the meantime, however, an entirely new feature had been written into the bill, providing for the centralization of one-half the reserves to be held by the regional banks in the Federal reserve system. This amendment, offered by Senator Reed on Nov. 5, was a final effort to compose the wide differences between the two factions in the Committee. It proposed that 24 regional banks be created with stock owned by the banks, who should elect a majority of the directors; and that the reserve of the member banks should be fixed at 12 per cent., one-third to be held in vault, one-third with the regional bank and the remainder in a general fund to be controlled by the Federal Reserve Board. The plan was denounced by Senator Owen as "equivalent to a central bank" but it was nevertheless adopted by a vote of seven to five, both Senator Hitchcock and Senator Reed voting with the Republicans.

At this point the results of the elections of Nov. 4 brought the conflict in the Committee to a decisive issue. They were generally interpreted as an emphatic endorsement of the Administration and effected the conversion of Senators Reed and O'Gorman from wavering adherence to firm support of the President's currency policy. A motion to reconsider the vote reducing the number of regional reserve banks to four was carried on Nov. 7 by a vote of seven to five, and on the following day the whole question was reopened. The invincible opposition of Senator Hitchcock brought about a hopeless deadlock. The supporters of the Administration urged in vain that the President was determined that the measure should provide for not less than eight regional banks. Vote after vote on various proposals to fix the number at from four to eight resulted in a tie, and at the close of an all-day wrangle the two factions terminated the conferences on the bill and proceeded to the drafting of separate reports. In a final session on Nov. 20 the Committee agreed to report a disagreement on the House bill and to sub-

mit to the Senate two measures embodying the proposals of the Administration supporters and of Senator Hitchcock and the Republicans.

The Owen and Hitchcock Reports.—The reports of the divided Committee were filed on Nov. 22 and with them the House bill was submitted to the Senate without recommendation. All three of the bills were in agreement on the great fundamentals of the system—the concentration and mobilization of bank reserves through the creation of special reserve banks; the issue of an elastic currency secured by prime commercial papers held by the banks; the promotion of an open discount market for the mobilization of credit and currency; and the control of the entire system by the Government. As to the practical method of carrying these purposes into effect, the three plans differed on many important points.

The Owen bill reduced the number of reserve banks to eight, capitalized at $10,000,000, representing six per cent. of the combined capital and surplus of member banks, and provided that any stock not subscribed by the banks should be offered to the public; the Hitchcock plan reduced the number of reserve banks to four, with the proviso that four more might be created by the Federal Reserve Board after two years, and while it adopted the basis of capitalization of the Owen bill, it provided that the entire stock issue should be underwritten by the banks and opened to public subscription. The five per cent. dividend fixed by the House bill was retained in the Hitchcock plan but the Owen bill raised the dividend to six per cent. All three plans agreed that a surplus fund of 20 per cent. should be created out of additional earnings but differed as to the proportion of such additional earnings to be applied to this purpose, the House bill specifying one-half, the Hitchcock bill one-quarter, and the Owen bill the entire amount. Earnings remaining after payments to stockholders and surplus, the Owen bill provided, should go to the Government as a franchise tax, to be applied to the reduction of debt, while the Hitchcock plan proposed that 37½ per cent. should be used to create a fund for the insurance of deposits, the remainder going to the Government. All three bills prescribed boards of directors of nine members for regional reserve banks, but the Hitchcock plan provided that five should be chosen by the Federal Reserve Board and only four by the member banks, while the House and Owen bills gave the appointment of only three directors to the Federal Reserve Board and left the choice of the other six to the member banks.

The Federal Reserve Board was left in the Owen bill with a membership of seven, but only the Secretary of the Treasury was retained as an *ex officio* member and instead of the Secretary of Agriculture and the Comptroller of the Currency admitted by the House bill the President was empowered to appoint two additional members, all the directors serving for six years at an annual salary of $10,000; the Hitchcock plan, on the other hand, proposed to increase the Federal Reserve Board to nine members, including the Secretary of the Treasury, and empowered the President to appoint eight members for eight years at an annual salary of $12,000. The Owen bill provided that the reserve banks might discount direct obligations of member banks secured by "satisfactory securities" up to three-fourths of the value of these securities, while rediscount of other paper should be subject to regulation by the Federal Reserve Board; under the Hitchcock plan each member bank was empowered "as a matter of right" to rediscount approved paper, half of which might have a term of six months, with reserve banks at three-fourths of its face value up to the full amount of the bank's capital, 50 per cent. additional with an additional tax of one per cent., and another 50 per cent. with an additional tax of two per cent. Both the Owen and Hitchcock plans rejected the provision of the House bill permitting national banks to segregate 20 per cent. of their capital for the operation of savings departments. Both bills also empowered member banks to make a reasonable charge for collection of notes and drafts.

The Owen bill retained the provisions of the House bill as to the reserves to be held against deposits, except that country banks were re-

quired to maintain a reserve of five per cent. of their time deposits additional to the 12 per cent. reserve against demand liabilities; the Hitchcock plan proposed to reduce the reserve requirement for city banks from 18 to 15 per cent. and also to reduce from five to four per cent. the proportion of reserves which country banks were required to maintain on deposit with Federal reserve banks. The Hitchcock bill raised the reserve to be held by Federal reserve banks against note issues from 33⅓ to 45 per cent. in gold or gold certificates instead of gold or "lawful money," and made Federal reserve notes redeemable in gold only; it provided, however, that the gold reserve might be reduced to 30 per cent. under penalty of a tax of one per cent. for each 2½ per cent. reduction. The Owen bill raised the total reserve of Federal reserve banks against demand liabilities to 35 per cent. in gold or lawful money but required that the gold reserve in the banks' own vaults and with the Treasury should be maintained at 33⅓ per cent. of notes outstanding.

The Bill in the Senate.—The long conflict in the Committee had taught the President and the Democratic leaders the futility of submitting currency legislation to debate in the Senate without a majority pledged to the support of the Administration policy. Accordingly the House bill and the Owen and Hitchcock reports were submitted to the consideration of a caucus of the Senate Democrats on Nov. 26. The first proceeding of the caucus was the approval of a resolution offered by Senator O'Gorman that from the beginning of the new session on Dec. 1, the Senate should sit daily from 10 a. m. to 11 p. m. with recess from 6 p. m. to 8 p. m. until a vote was reached on the Currency bill, and that unless the bill were passed before Christmas, no Christmas recess should be taken except over Christmas Day. The final result of the conference, which continued until the 30th, was the approval of the Owen modification of the bill as a party measure with three important changes: (1) fixing the number of regional reserve banks at not less than eight nor more than twelve, at the discretion of the Federal Reserve Board (2) creating a fund for the guarantee of bank deposits out of surplus earnings of the Federal reserve banks, one of the principal features of the Hitchcock plan; and (3) exempting experts and officers of the new currency system from the provisions of the civil-service law. Senator Lane of Oregon opposed both the Owen and Hitchcock plans as too liberal to the banking interests and refused to be bound by caucus action; his defection, with that of Senator Hitchcock, reduced the strength of the majority to 48.

After a week's conflict in the Senate the Democratic programme for daily sessions of 13 hours was approved on Dec. 6 by a vote of 41 to 18, eight Republicans voting with the majority, and general debate on the Currency bill was opened on the 8th. The feature of the debate was a speech by Senator Root on the 13th, pointing out the dangers of the measure approved by the Democratic caucus. He declared that without statutory limitation of the issue of Federal reserve notes the bill opened the way to unlimited inflation of the currency, and in effect revived the "financial heresy" advocated by Mr. Bryan and twice repudiated by the people of the United States. This arraignment of the bill created a most profound impression and led to further revision of the measure in the Democratic caucus on Dec. 17 and 18. Mr. Root offered in the Senate an amendment providing that the reserve to be held against issues of Federal reserve notes should be increased from 35 to 50 per cent.; that a tax should be imposed whenever the reserve fell below 50 per cent. and that no additional circulating notes should be issued if the reserve fell below 33⅓ per cent. of the notes outstanding; and that a special tax of 1½ per cent. should be imposed on notes issued by Federal reserve banks in excess of $900,000,000 not covered by an equal amount of gold, and a tax of five per cent. on notes in excess of $1,200,000,000 not so covered. While the Democratic caucus refused to place an arbitrary limit on the note issue, it decided to increase the gold reserve required from 35 to 40 per cent. and to impose a tax of one per cent. on the depletion of the reserve down to

32½ per cent. and an additional tax of 1½ per cent. for each additional decrease of 2½ per cent. The caucus provided also for the use of a part of the surplus earnings of regional reserve banks for building up the gold reserve and approved a clause requiring reserve banks to keep intact in the Treasury a fund to provide for the redemption of outstanding notes. Two of the proposals of the Hitchcock plan were likewise approved, one increasing the salary of members of the Federal Reserve Board from $10,000 to $12,000 and the other admitting to rediscount paper based on agricultural transactions with a maturity of 180 days, leaving to the discretion of the Federal Reserve Board the acceptance of the long-term paper as security for note issues.

During the brief debate on the bill in committee the Senate adopted all the amendments to the House bill approved by the Democratic caucus, and rejected with equal consistency the changes proposed by Senator Hitchcock and the Republicans. Of the few amendments adopted without the previous approval of the Democratic caucus, the most important provided that no member of the Senate or House of Representatives should be a member of the Federal Reserve Board, a director of a Federal reserve bank, or an officer or director of any member bank; that the Secretary and Assistant Secretaries of the Treasury, the Comptroller of the Currency and members of the Federal Reserve Board should be ineligible for any service connected with a member bank for a period of two years after the expiry of their terms of office; and that loans on real estate might be made by banks in reserve cities as well as by country banks. On Dec. 19 the Senate rejected the Hitchcock bill by a vote of 44 to 41, and passed the Owen modification of the House bill by a vote of 54 to 34. On the final vote Senator Hitchcock voted for the bill and the majority included Senator Poindexter (Wash.), Progressive, and six Republicans, Senators Weeks (Mass.), Crawford (S. D.), Sterling (S. D.), Jones (Wash.), Norris (Neb.), and Perkins (Cal.).

The Bill in Conference.—The House voted on Dec. 20 to disagree to the Senate amendments and sent the bill to conference. The final draft of the bill, completed on the 22d, restored few of the provisions of the House measure. The conference rejected Senate amendments providing for the guarantee of deposits; making Federal reserve notes eligible as reserves of member banks, and authorizing charges on the collection of checks and exchanges. On the other hand, the House conferees agreed to new clauses fixing the number of reserve banks at not less than eight nor more than 12; increasing the gold reserve against notes to 40 per cent.; increasing the dividend of Federal reserve banks from five to six per cent.; making the capital and surplus of member banks the basis of capitalization of Federal reserve banks; empowering national banks except those in the three central reserve cities to make direct loans on five-year farm mortgages up to 25 per cent. of their capital and surplus or one-third of their time deposits; increasing the salaries of members of the Federal Reserve Board from $10,000 to $12,000; providing that members of the Board should represent the "geographical, commercial and financial divisions of the country," and that two members should have banking experience; and removing the Secretary of Agriculture from the Board. The Comptroller of the Currency, however, was restored as an *ex officio* member and the President was empowered to appoint five members for 10-year terms instead of six members for six years. A compromise was reached on the minimum capital of Federal reserve banks, fixed by the House at $5,000,000 and by the Senate at $3,000,000; the capital was finally fixed at $4,000,000. The House conferees inserted a provision requiring that the Government's share of the earnings of Federal reserve banks should be applied to the gold redemption fund or to the reduction of bonded indebtedness.

The reserve provisions finally agreed to require a reserve of five per cent. against time deposits for all member banks, and reserves against demand deposits of 12 per cent. for country banks, 15 per cent. for banks in reserve cities, and 18 per cent. for banks in central reserve cities. The Senate

provision permitting all reserves of country banks to be held in the vaults of Federal reserve banks was altered to require at least one-third, as in the case of city banks, to be held in the bank's own vaults, and the House provision for a transition period of three years, reduced to two by the Senate, was restored.

In the final draft the clause providing for the retirement of national bank notes was rewritten. After two years from the passage of the Act and during a period of 20 years thereafter, the Federal Reserve Board in its discretion may require Federal reserve banks to purchase two per cent. bonds at par and accrued interest from member banks desiring to retire all or any part of their circulation, to a total value of $25,000,000 in any one year distributed among the Federal reserve banks in proportion to their capital. The purchase price in lawful money is to be deposited with the Treasurer of the United States for the redemption of the notes, and the Federal reserve banks are empowered to take out additional circulation equal to the par value of the bonds purchased. The Federal reserve banks, with the approval of the Federal Reserve Board may exchange two per cent. bonds under certain restrictions for 50 per cent. of their par value in 30-year three per cent. bonds without circulation privilege and the remainder in one-year three per cent. Treasury gold notes.

The Final Passage—The conference report was submitted to the House on Dec. 22 and adopted by a vote of 298 to 60. Two Democrats, Witherspoon (Miss.) and Calloway (Tex.), voted against the bill, while 34 Republicans, 11 Progressives and Kent (Cal.), the Independent, voted with the majority. The Senate adopted the report on the following day by a vote of 43 to 25, Senator Poindexter and three Republicans—Weeks (Mass.), Norris (Neb.), and Jones (Wash.)—voting for the bill, and Senator Perkins (Cal.), who had voted for the Senate measure, with the minority.

The President signed the bill on the evening of Dec. 23. To the Democratic leaders who witnessed the signature he said:

> I feel that we can say that it is the first of a series of constructive measures by which the Democratic party will show that it knows how to serve the country. . . . I myself have always felt when the Democratic party was criticised as not knowing how to serve the business interests of the country that there was no use of replying to that in words. The only satisfactory reply was in action. We have written the first chapter of that reply. We are greatly favored by the circumstances of our time. We come at the end of a day of contest, at the end of a day when we have been scrutinizing the processes of our business, scrutinizing them with critical and sometimes with hostile eye. We have slowly been coming to this time which has now, happily, arrived when there is a common recognition of the things that it is undesirable should be done in business, and the things that it is desirable should be done.
>
> What we are proceeding to do now is to organize our peace, is to make our prosperity not only stable, but free to have an unimpeded momentum. It is so obvious that it ought not need to be stated that nothing can be good for the country which is not good for all the country. Nothing can be for the interest of the country, which is not in the interest of everybody; therefore, the day of accommodation and of concession and of common understanding is the day of peace and achievement of necessity. We have come to the beginning of that day. Men are no longer resisting the conclusions which the nation has arrived at as to the necessity of readjustments of its business. Business men of all sorts are showing their willingness to come into this arrangement, which I venture to characterize as the constitution of peace. So that by common counsel, and by the accumulating force of coöperation, we are going to seek more and more to serve the country.

MISCELLANEOUS AND LATE EVENTS

Impeachment of Governor Sulzer.—A spectacular struggle between William Sulzer, Democratic Governor of New York, and the Democratic machine dominated by Charles F. Murphy of Tammany Hall, culminating in the removal of the Governor by impeachment in October, aroused the widest popular interest of any event of the year. Mr. Sulzer entered the New York Assembly in 1890 as an adherent of the Tammany Society and remained loyal to the organization during his four years' service in Albany and the succeeding 18 years in Congress. In 1912 he offered himself as a candidate for Governor, and received the Demo-

cratic nomination as the result of a compromise between the Tammany and up-state wings of the party. Three months after his inauguration on Jan. 1 Governor Sulzer had come to an open break with Murphy on the issue of political appointments, and on April 8 he confirmed his complete revolt from Tammany influence in a special message to the Tammany-controlled legislature urging the passage of a direct-primary law which would abolish the state convention. The legislature refused to confirm the Governor's appointments and adjourned on May 3 after defeating his Direct Primary bill. During May and the early part of June Mr. Sulzer toured the state in the interest of the bill and summoned the legislature in special session on June 16 to reconsider it. With the opening of the new session Tammany assumed the offensive. The Direct Primary bill was rejected a second time and a Tammany committee of the legislature was appointed to investigate the conduct of the state departments under the Sulzer administration. On June 25 the Senate empowered this committee to investigate the Governor's campaign fund and his use of patronage and the veto power. After a month's fruitless search for evidence of official misconduct, the committee began an inquiry into the Governor's financial affairs and on July 30 discovered that checks had been contributed to Mr. Sulzer's campaign fund for which no return had been made in the Governor's sworn statement of campaign receipts and expenditures filed with the Secretary of State under the Corrupt Practices Act. On Aug. 11 the committee presented to the legislature the accumulated evidence of unreported contributions to the amount of $8,500 and of stock speculations engaged in by Mr. Sulzer between his nomination and inauguration. Early in the morning of the 13th the Assembly voted by 79 to 45 to impeach the Governor on eight counts.

Mr. Sulzer refused to recognize the right of the Assembly to impeach him during a special session of the legislature and denied further that under the constitution of the state a legal impeachment involved suspension from office pending the result of the trial. During the next two months there were two Governors in Albany, Mr. Sulzer in the Executive Mansion in possession of the privy seal, and Martin H. Glynn, the Lieutenant-Governor, recognized by the legislature as Governor on Aug. 27. Mr. Sulzer's constitutional right to exercise the functions of the office pending trial was denied by a justice of the Supreme Court on Sept. 11 in refusing to honor a pardon over his signature. The legality of the impeachment was argued on the assembly of the Court of Impeachment, composed of the 51 members of the Senate and the nine Justices of the Court of Appeals, on Sept. 18; on the 22d, Mr. Sulzer's demurrer was overruled by a vote of 51 to one. The taking of testimony was begun on Sept. 24 and on Oct. 16 and 17 the Court found Mr. Sulzer guilty on three of the articles charged against him and acquitted him on the other five by unanimous vote. The charges and the votes were as follows:

1. That William Sulzer filed with the Secretary of State a false statement of campaign receipts and expenditures. Guilty 39 to 18.

2. That he committed perjury in swearing to this false statement. Guilty, 39 to 18.

3. That he bribed witnesses to withhold testimony from the investigating committee of the legislature. Not guilty, unanimous.

4. That he suppressed evidence by means of threats to prevent witnesses from testifying before this committee. Guilty, 43 to 14.

5. That he prevented and dissuaded an alleged dummy in the stock transactions from appearing before the committee under subpœna. Not guilty, unanimous.

6. That he committed larceny in using for stock speculation money contributed for campaign purposes. Not guilty, unanimous.

7. That he threatened to use his office and influence as Governor to affect the vote or political action of certain public officers. Not guilty, unanimous.

8. That while Governor he corruptly used his authority and influence to affect the prices of securities in which he was interested on the New York Stock Exchange. Not guilty, unanimous.

On Oct. 17 the Court removed Mr. Sulzer from office by a vote of 43 to 12, but voted unanimously against disqualification. The judges of the Court of Appeals were divided on the legality of impeachment for acts committed before Mr. Sulzer became Gov-

ernor; Chief Justice Cullen, the president of the Court of Impeachment, and one or two others, voted against conviction on all counts.

Mr. Sulzer was nominated for the Assembly by the Progressives of the Sixth District, in New York City, on Oct. 20. Throughout the state the opponents of Tammany Hall were inclined to condone his offenses and to consider him as the victim of a heroic fight against Tammany corruption. His violent campaign against Murphy aroused remarkable demonstrations of popular enthusiasm, and he was elected on Nov. 4 by a majority over his Democratic and Republican opponents of two to one.

Politics in New York.—The impeachment of Governor Sulzer was followed by political events of the utmost importance and the highest dramatic interest. His campaign in New York charged Tammany Hall with removing him because he had persisted in an investigation of the management of state departments which had uncovered traces of gross frauds in highway and canal contracts. Out of the charges of the deposed Governor and the more definite accusations of John A. Hennessy, one of his investigators, has grown a state-wide investigation of the relations between the political machine and contractors which has already resulted in the conviction of political agents for blackmail in connection with the letting of state contracts. As noted on another page (see *Politics and Parties, infra*), the November elections resulted in the complete overthrow of Tammany influence in New York City government and in the state Assembly. Of the 150 members of the Assembly of 1914, 79 are Republicans and 19 Progressives, while many of the 52 Democrats were elected on pledges to support the direct-primary legislation which had precipitated the final struggle between Sulzer and the Tammany machine. Despite Sulzer's personal triumph in New York, this result was in no sense a popular absolution of the impeached Governor, but it recorded unequivocally the popular resentment against the fundamental cause and method of his removal.

The effect of Tammany's defeat was a most remarkable reversal of policy. The Tammany-controlled legislature of 1913, which had been in recess since the impeachment trial, reassembled on Dec. 8 for final adjournment of the extra session called by Governor Sulzer on July 16. His successor, Martin H. Glynn, who had meanwhile declared his independence of Tammany influence, recommended in a special message the passage of five measures—a direct-primary law, a law adopting the Massachusetts ballot (see II, *Popular Government*), legislation establishing machinery for the direct election of U. S. Senators and providing for a special election on the second Tuesday in April, 1914, on the question of calling a convention to revise the state constitution, and a workmen's compensation law for which authority was obtained in a constitutional amendment adopted in November (see VI, *Amendments to State Constitutions*; and XVII, *Labor Legislation*). This entire programme of momentous legislation was enacted before the adjournment of the legislature on Dec. 12, and the bills were signed by the Governor on Dec 17.

The direct-primary law abolished the state convention as a nominating body and provided for the direct nomination of state officers in primary elections. The earlier measure of 1911 (*A. Y. B.*, 1911, p. 185) had established the direct primary for the nomination of judges, Representatives in Congress and members of the State Senate and Assembly but had left the nomination of state officers to the state convention. The new ballot law is not exactly the same as its Massachusetts prototype (see II, *Popular Government*); the use of the party emblem is permitted since there is no educational qualification for voters in New York, but otherwise the two measures are practically identical.

The workmen's compensation law which goes into effect on July 1, 1914, covers only employments specified in the law as hazardous. It fixes rates and periods of compensation for various injuries resulting in various degrees of disability or in death, on the general basis of two-thirds of the average rate of wage paid at the time of the injury. The weekly amount cannot be less than $5 nor more than

$15, except in case of the loss of an arm, foot, leg or eye, when the maximum is $20. In case of permanent partial disability, the aggregate of weekly payments is limited to $3,500. In case of death, the employer is to pay funeral expenses not exceeding $100 and compensation to dependents at the rate of not more than two-thirds of the weekly wage. This compensation ceases on the remarriage of the widow, when two years' compensation may be paid at once, or when the children reach the age of 18. Employers may create their own insurance funds or may insure in mutual associations, in casualty companies or in a state fund created by the Act; employers insured in the state fund are released from all liability. The administration of the state fund and the execution of the law is entrusted to a Workmen's Compensation Commission of five members with wide powers, which is to determine the facts of all claims, collect and pay all compensation, and fix rates for insurance.

The Gettysburg Reunion.—One of the deeply impressive events of the year was the reunion of the survivors of the Civil War at Gettysburg from July 1 to 4 in celebration of the fiftieth anniversary of the Battle of Gettysburg. The 57,000 Union and Confederate veterans from all states encamped on the battlefield were cared for by the commissary and medical organizations of the U. S. Army. Nearly all the states paid the transportation expenses of their own representatives. The total expenditure for the transportation and entertainment of the veterans was more than $1,000,000, Pennsylvania alone appropriating $450,000 and the Federal Government $150,000. President Wilson addressed the veterans on July 4.

The Parcel Post.—An experimental extension of the parcel-post service was made, as noted on another page (see XXII, *The Postal Service*), by an order of the Postmaster-General effective Aug. 15, increasing the weight limit in the first two zones from 11 to 20 lb. and materially reducing rates in these zones. The result of the experiment was a further and more important plan of extension approved by the Interstate Commerce Commission on Dec. 6. Effective Jan. 1, 1914, the weight limit is increased from 20 to 50 lb. in the first two zones and from 11 to 20 lb. in all zones beyond the second, while the rates in the third to the sixth zone are materially reduced, as follows: third zone, from 7 cents for the first pound and 5 cents for each additional pound to 6 cents for the first pound and 2 cents for each additional pound; fourth zone, from 8 cents and 6 cents to 7 cents and 4 cents;; fifth zone, from 9 cents and 7 cents to 8 cents and 6 cents; and sixth zone, from 10 cents and 9 cents to 9 cents and 8 cents. Effective March 16, 1914, books are admitted to the parcel post; on parcels weighing less than eight ounces the rate of postage is fixed at one cent for each two ounces, while above that weight the zone rates apply.

The American Telephone and Telegraph Company Dissolution.—A significant development in the enforcement of the anti-trust law was inaugurated in December. The American Telephone & Telegraph Co., better known as the Bell system, which controls also the Western Union Telegraph Co., voluntarily agreed on Dec. 19 to reorganize immediately in full conformity with the terms of the Sherman Act. The affairs of this company, whose operations cover the entire country, have been under investigation by the Department of Justice for several years, and the reorganization was proposed by the Department as a means of avoiding a contemplated suit against the company as a combination in restraint of trade. Under the terms of the agreement reached with the Department of Justice, the American Telephone & Telegraph Co. will dispose of its holdings of stock in the Western Union Telegraph Co., and engages for itself and all other companies in the Bell system not hereafter to acquire control over any other competitive lines of exchange; it agrees also to open the toll lines of the Bell system to the service of all other telephone companies.

The disposition of Attorney-General McReynolds with the approval of the Administration to avoid litigation under the Sherman Act and to correct violations of the anti-trust law

by mutual agreement has made a most favorable impression on the business community. At the close of the year the New York, New Haven & Hartford Railroad Co., the American Sugar Refining Co. and other defendant corporations were reported to be in correspondence with the Department of Justice looking toward settlement of the cases pending against them. The interpretation of the new policy of the Administration as the establishment of a spirit of coöperation in place of a spirit of opposition and attack was, with the passage of the Currency bill, responsible for a marked improvement in the business outlook during the last fortnight of the year.

Death of J. Pierpont Morgan.—The death of John Pierpont Morgan in Rome on March 31 removed one of the great constructive forces of his age and country. Mr. Morgan was born in Hartford, Conn., on April 17, 1837, the son of a banker, Junius Spencer Morgan, who became a member of the firm of George Peabody & Co., of London in 1854 and on succeeding to the senior partnership ten years later changed its name to J. S. Morgan & Co. After graduation from the English High School in Boston, J. Pierpont Morgan attended the University of Göttingen until 1857, when he entered the New York banking house of Duncan, Sherman & Co., as a clerk. Three years later he was appointed American agent for his father's firm and in 1864 formed with Chas. H. Dabney the firm of Dabney, Morgan & Co. This partnership was dissolved in 1871 and Mr. Morgan then affiliated himself with the Philadelphia firm of Drexel & Co., establishing in New York the firm of Drexel, Morgan & Co. On the death of Anthony J. Drexel, the name of the New York house was changed in 1894 to J. P. Morgan & Co., and the two firms were continued with identical membership. At the same time Mr. Morgan's name was substituted for that of Drexel in the style of the Paris house of these interests, which became Morgan, Harjes & Co., and in 1910 the name of the London house was changed to Morgan, Grenfell & Co.

Mr. Morgan was for upwards of a quarter of a century the dominant figure in American finance and through his international affiliations wielded power unparalleled in the financial history of the world. At the outset of his career he inaugurated a new era in railroad methods and railroad management and rehabilitated the credit of the great systems which had been devastated by the fraud and rapacity of the Fisks and Goulds of the previous generation. Throughout his life his creative genius and the vast resources at his command were devoted to the promotion of great reproductive enterprises, which, directed by a character of unimpeachable honesty, of unconquerable optimism, and of boundless faith in the future of the United States, established Mr. Morgan in the foremost place among the "captains of industry" who led the industrial advance of the last half century. His commanding position was naturally the objective of every attack on the established financial and industrial system, and to one of these attacks he finally succumbed. His death was attributed by his physicians directly to the nervous strain of his examination before the Pujo committee investigating the "money trust" in December, 1912.

The body was brought to New York on April 11 by the steamship *La France*. The interment was at Hartford, Conn., on the 14th, after a funeral service in St. George's Church, New York. Memorial services were held coincidently in Westminster Abbey, London, and Trinity Church, Paris, two of the innumerable tributes paid to Mr. Morgan's memory. Mr. Morgan's will, filed for probate on April 21, ratified and confirmed all the partnership agreements existing at the time of his death. His interests in the New York, Philadelphia, London and Paris houses are continued by his son, J. Pierpont Morgan, Jr.

Death of William J. Gaynor.—William Jay Gaynor, Mayor of New York, died on board the ss. *Baltic* on Sept. 10. Mr. Gaynor was born in Whitestown, N. Y., in 1851. After graduation from the public schools he began to study for the Roman Catholic priesthood but later abandoned theology for the profession of law. He

was admitted to the bar in Brooklyn in 1875 and at once became active in Democratic politics. In 1893 Mr. Gaynor was elected justice of the state Supreme Court on the Republican and Independent Democratic tickets, and was reëlected in 1907 for a second term of 14 years. Mr. Gaynor several times declined the nomination for Mayor of Brooklyn and once the Democratic nomination for Governor of New York. In 1909 Mr. Gaynor accepted the Democratic nomination for Mayor of New York and carried the election against a strong fusion candidate, although his associates on the Democratic ticket were defeated. Less than a year later he was shot by a discharged city employee. The effects of this wound permanently impaired his health and thus destroyed his political prospects. Had his strength been equal to the strain, he would have been the Democratic candidate for Governor in 1910 and New York's candidate for the Presidential nomination in 1912.

Both on the bench and in politics Mr. Gaynor was of a singularly courageous and independent mind. Although elected Mayor of New York as the candidate of Tammany Hall his administration was entirely independent of Tammany influence. The machine refused him a renomination in 1913 and the fusion forces nominated one of his former subordinates, John Purroy Mitchel, but Mr. Gaynor was offered and accepted an independent nomination in a remarkable popular demonstration on Sept. 3, just before he sailed for a brief holiday in Europe.

POLITICS AND PARTIES

James Albert Woodburn

The Party Situation.—In politics and party life the year 1913 has been one of doubt and uncertainty, of surmise and expectancy. It has been an "off year" without any decisive or significant party conflicts. The party situation may be said not to have materially changed since the close of the heated Presidential contest of 1912. The party events of importance, the conferences, the pronounced tendencies, the utterances of party leaders and other influences affecting public opinion may be briefly recounted and estimated.

The Democratic Party.—The fortunes of the Democratic party during the year have depended largely upon the leadership of President Wilson. In that leadership and the policies which he has announced the record of the party is to be traced. For the most part the legislative and organization leaders of his party have followed and sustained the President in the path that he has marked out. His utterances on subjects of public policy are reviewed in the preceding pages (see *The Democratic Administration*, and *The Sixty-third Congress, supra*).

With the inauguration of President Wilson on March 4, the Democratic party again came upon trial. It was known to be coming to power as a minority party; it had not yet received a vote of popular confidence, and but for the divison among its opponents it could not have obtained the responsibility of power. President Wilson said in New Jersey soon after his inauguration (May 1):

> I want everybody to realize that I have not been taken in by the results of the last national election. The country did not go Democratic. It was impossible to go Republican because it could not tell what kind of Republican to go.

The Democratic party had failed with the tariff in 1894 and had been rent asunder on the money question in 1896, and for 16 years of struggle it had been a party divided within itself. There was fear that the Democratic Congressional leaders might not support the President and that there would be serious need of Wilson's fearless leadership to prevent the party from again frittering away its efforts and opportunity in evasions, delays, and log-rolling compromises between contending and antagonistic forces within the party. The Progressive and Republican critics of the Democratic party believed that President Wilson would find himself standing between two hostile forces within

his own party, the one led by Mr. Bryan, the other by the Clark-Underwood machine in the House and by a similar combination in the Senate. It could not be determined which of these antagonistic forces really stood for the majority of those who had voted for Mr. Wilson. It was asserted that between these opposing forces there could be no real peace, though President Wilson announced with assurance that there would be no friction.

No sense of party uneasiness came at the inauguration. Mr. Wilson summoned "all honest men, all patriotic, all forward looking men" to his side. "God helping me, I will not fail them, if they will but counsel and sustain me." He interpreted the Democratic victory as more than mere party success. Party success would mean but little if the nation could not use the party for large and definite purposes. Old practices were seen to be alien and sinister; new things have come to give us a "new insight into our own life." (See also *The Democratic Administration, supra.*)

On April 7, President Wilson addressed the two houses of Congress. From a study of his inaugural address in March, his first address to Congress (April 7) and his regular message in December, the policies which he has laid out for his party may be summarized as follows:

1. A revision of the tariff that will bring us into more of the world's commerce.
2. A revision of the banking and currency system, not based on the necessity of selling bonds, but to avoid the concentration of cash and the restriction of credit.
3. An alteration of the industrial system which now "holds capital in leading strings," restricts the liberties and limits the opportunities of labor, and exploits without renewing or conserving the natural resources of the country.
4. Amelioration of agricultural activities by application of the instruments of science and facilities for rural credit.
5. Development of water courses, reclamation of waste places, reforestation, and increase of effective means of production.
6. Safeguarding the health of the nation by suitable sanitary laws.
7. A Government railway for Alaska.
8. Self-government for Porto Rico and Hawaii.
9. Ultimate independence for the Philippines, with immediate and positive steps toward preparation for that end.
10. A policy of "common council and conference" between Federal and state powers on the conservation question.
11. A system of primary elections for nominating candidates for President and Vice-President, without the intervention of nominating conventions, the latter to be retained only for the purpose of declaring and accepting the verdict of the primaries and formulating the platforms of the parties.

Parties in Congress.—In the House it soon became evident that the Democratic majority would support President Wilson in his policies.

In the House membership there were 291 Democrats with Oscar W. Underwood (Ala.) as leader, 127 Republicans with James R. Mann (Ill.) as leader, and a group of about 20 Progressives who chose Victor Murdock (Kan.) as leader. In the Senate, out of 96 seats, the Democrats had 51, the Republicans 44, counting the group of the Progressive Republicans and there was one straight-out Progressive, Senator Poindexter, of Washington. There were three well-defined classes among the Republicans: (1) the old conservative "stand-pat" group, represented by Senators like Penrose, Gallinger, and Smoot; (2) the "intellectual moderates," men like Root, Lodge and Burton; and (3) the positive progressive Republicans of the old "insurgent group," men like La Follette, Cummins, and Bristow. These progressive Republican Senators are much nearer to the Democrats than to the Republicans of the "stand-pat" order, as was indicated by Senator La Follette's vote in favor of the Underwood Tariff bill.

On the Democratic side, Senators Martin (Va.) and Simmons (N. C.), who were ranking members on leading committees in the Senate, were regarded with some suspicion as being conservatives or reactionaries. They were allowed to retain their committee ranking positions, but the progressive wing of the Democrats obtained control of the Democratic caucus, and Senator Kern (Ind.), who was close to Mr. Bryan and who was looked upon as a reliable progressive, was made chairman of the caucus, becoming thereby floor leader and Democratic manager in the Senate. Moreover, the Senate committees were not left so much as formerly under the control of their chairmen. Heretofore, a committee's meetings had

been called by the chairman. He named sub-committees and conferees, and these often determined the fate of important measures. Under the new *régime*, the Democratic "steering committee," with Senator Kern as chairman, assigns members to their committees, subject to the action of the Democratic caucus; the committees name their own chairman by majority action and conferees are named by the same vote. This means that the chairman is merely a presiding officer with no more prestige or authority than any other member and he cannot check the programme of the majority. Party action in each house is determined by the party caucus, and the party through its caucus and floor leaders promotes or retards public measures and is held responsible for its conduct. It is in the party caucus of the majority party that decisions are made and legislation is formulated and determined upon. The minority members of the Congressional committees are not consulted on legislation until measures are in such shape as the majority caucus has determined should be their final form for enactment into law. This reduces the minority members to the position of critics of the policies and legislation of the majority and deprives them of being participants in law-making. The minority are thereby merely given a place on the "opposition benches" as in England, without taking any real part in committee in formulating the laws. This new aspect of party government in law-making is now under public criticism and discussion. Since the party caucus possesses such vital powers and decisions in legislation there is a demand that it should not be secret, but that it should be held in the open that the public may be informed of the caucus influence, votes, and conduct of its members. (See also *The Sixty-third Congress, supra.*)

Reorganization of the Republican Party.—Mr. Taft in his final message to the Republican party before his retirement from the Presidency, delivered in New York on Jan. 4, 1913, before the Union League Clubs of New York and Philadelphia, and the Republican Clubs of New York and Massachusetts, reviewed the record of his administration and the causes of his party's defeat. He claimed that Republican restoration was assured. He said:

> In spite of the defeat recorded at the election in November, we were still victorious in saving our country from an administration whose policy involved the sapping of the foundations of the democratic, constitutional, representative government; whose appeals to the people were calculated to arouse class hatred that has heretofore been the ruin of popular government, and whose contempt for the limitations of the constitutional law and the guaranties of civil liberty promised chaos and anarchy in a country that has until this time been the model of individual freedom and effective popular government. . . . The Republican party stands for protection to the Nation's industries; for the retention of the Philippines and the enlightenment of the Filipinos; for widespread education; for those election laws which give the people the best opportunity to express their preference; for all really practical measures which look through the aid of the Government to the relief of the oppressed; but above all it stands for the preservation of the pillars of popular government; it stands for the maintenance of the rights of all, for the greatest good of the greatest number, and it believes that those ends are attainable through the control of the majority properly limited by fundamental law.
>
> It has been suggested that the Republican party can unite again with many of the Progressive party. . . . It is the principle that the party advocates that should control one in its support. . . . In this crisis we feel that we have the means of preventing the country from taking a step which if taken will precipitate us into governmental chaos, will set the country on a chimerical chase for an ideal that is impossible to realize, and that in this chase the country will lose the inestimable benefits of a permanent, popular government that we have developed after a thousand years of struggle and have created, maintained, and preserved inviolate for 125 years of national liberty. . . . What we wish to assure ourselves of is that neither through Democratic radicalism nor through the Progressive radicalism shall the pillars of our people be sacrificed to dreams of demagogues and theorists.

Nicholas Murray Butler, President of Columbia University, after the death of Vice-President Sherman received the eight Republican electoral votes for Vice-President, and thus became one of the recognized leaders and spokesmen of the party. He urged the calling of a national party convention in 1913, to reorganize the party, to make a new apportionment of delegates, and to announce a new

declaration of party faith. Late in 1912 (Dec. 14), only a month after the election, in an address at Chicago on "What is Progress in Politics," Dr. Butler appeared ready to accept a number of notable changes in our system of politics and government. He would still hold to written constitutions as a means of limiting the power of executives and legislatures, but he would have these constitutions more easily amended that the frame work of government might be more flexible; he would give Cabinet officers seats in both houses of Congress, to answer questions and share in debate; he would introduce the short ballot, the expert drafting of laws, the budget plan for reforming public expenditures; he would reform judicial procedure, make taxation more direct, and would seek such measures of industrial justice as would improve the social conditions "of those who live on the margin of want and prevent the injustices now existing in society"; and while he would not bring party machinery under the control of state law, he would improve nominating methods by making this machinery more responsive to public opinion.

These proposed changes were not at issue in party platforms and they were generally approved by public spirited men of all parties. While they were looked upon as marking a measure of progress, they fell far short of the Progressive party demands, and were regarded by the Progressives merely as an adroit diversion to recall seceders or to prevent further inroads on the Republican party strength. By others more favorably disposed they were taken to indicate a liberal tendency in the counsels of certain Taft Republicans toward questions of law and administration, if not toward more fundamental political reforms and problems of the day. But it was certain that President Butler's programme would not satisfy either the Progressives who had gone out, or the progressive Republicans, like Senators La Follette, Cummins and Borah, who had stayed with the party.

Conference of Progressive Republicans.—On May 12 a conference of these Progressive Republicans was held in Chicago. The conference was announced as "the first step toward reuniting the Republican party" with a view to "reorganizing the party along progressive lines." The conference after a two days' session issued the following statement:

> At an informal conference of Republicans from 11 states held at Chicago, May 12, 1913, it was voted that it be submitted to the National Republican Committee as the opinion of those present, that a national convention of the party should be held this year at as early a date as may be practicable, for the purpose of considering the expediency of changing the basis of representation in future conventions so that the delegates shall proportionately represent Republican voters and not general population, to the end that the will of the members of the party may be more accurately determined; also for the purpose of changing the rules relating to delegates and members of the National Committee so that primary election laws of the various states shall be recognized, and also for the purpose of making such other changes in the methods of conducting national conventions and campaigns as shall conduce to giving the utmost possible effect to the principles and policies of the party.

The New York State Republican Convention.—The suggestion of a national convention for the purpose of bringing about a revision of the party rules and constitution was reviewed by a more official and more representative body of Republicans a few months later. The Republican state convention of New York, under the leadership of Senator Root on Sept. 23 went on record in favor of a national convention and for a reform of the party rules. The committee on resolutions adopted the following after a spirited discussion:

> We instruct the representative of the state of New York in the National Committee to urge that a national convention be called as soon as practicable, to change the party rules so as:
>
> 1. To provide that in the call for future national conventions delegates are to be chosen in each state in the manner preferred by the Republican voters in such states. We, however, urge the continuance of the Congressional district, as the basis of representation.
>
> 2. To insure that representation in the national conventions shall hereafter be based more nearly on the Republican vote actually cast in the several states and Congressional districts, which just principle received the unanimous support of the delegation from the state of New York at the National Convention of 1908; and
>
> 3. To amend the rules relative to

party procedure in such other respects as may be requisite.

William Barnes, the representative on the National Committee from New York, secured the insertion of the clause recommending the retention of the Congressional district as the basis of representation. Without this provision for the continuance of district representation, Mr. Barnes thought the scheme would be impracticable, as it would leave too much power in the hands of the leaders and parties dominant in the different states.

It will be remembered that the National Committee at Chicago in 1912, in determining who should sit in the convention, refused to seat delegates from California who were chosen at a state-wide primary as provided by state law, and seated instead Taft delegates selected by a district vote according to the directions of the National Committee (*A. Y. B.*, 1912, p. 11). This raised the question whether in sending delegates to the National Convention the rules of the party Committee should have greater weight and authority than the laws of the respective states; whether the result of primaries provided by law within the states might be disregarded and set aside by the decision of a National Committee.

The Republican National Committee.—It was expected that by this policy the advocates of progressive ideas would be led to believe that the leaders of the "old guard" were showing a willingness to meet half way those who had left the party to follow Mr. Roosevelt. The committee of the Progressive Republican conference held in Chicago in May submitted to the executive committee of the Republican National Committee a communication in writing setting forth the matters in controversy, and the executive committee also received official notice of the action of the New York party convention. It was decided by the executive committee, in harmony with the report of the law committee, that the power to change the basis of representation in the Republican National Convention does not lie with the Republican National Committee, though the Committee has authority to call an intermediate convention to act upon the question. It was also decided that the National Committee has no authority to change the method of choosing delegates to future national conventions so as to provide that delegates be chosen in such manner as the laws of the several states from time to time may provide. The basis of representation in the special convention would have to be what it has been in the past, but this convention might change it for the next one to be held. Acting on a resolution of the executive committee, the chairman issued a call for a meeting of the Republican National Committee in Washington on Dec. 16.

At this meeting the law committee amplified its ruling on the powers of the National Committee and submitted the opinion that while the National Committee has not the power arbitrarily to change the basis of representation, it may legally do so by securing the ratification of any proposed action by the Republican state conventions. The National Committee accordingly resolved, subject to the approval of the state conventions, to reform the basis of representation of the South and to grant full recognition of the principle of the primary in the selection of delegates, without the holding of a special national convention. The decision of the Committee against a special national convention was not reached on factional lines: Senator Borah and Senator Smoot were among the 35 who opposed a special convention, while its 14 supporters included ex-Governor Hadley of Missouri, Murray Crane of Massachusetts and William Barnes of New York. The Committee adopted the following resolution without a dissenting vote:

> That it be the sense of this Committee that the Committee shall forthwith proceed to determine upon a basis of representation in future National Conventions of the party, subject to ratification by state committees of such place as may hereafter be drafted by this Committee;
>
> That the Committee pledge itself to issue a call for the convention to be convened in 1916 to nominate candidates for President and Vice-President in accordance with such basis of representation as shall be now determined upon by this Committee;
>
> That this Committee pledge itself to provide in such call for the National

Convention in 1916, that in each state which shall have provided by law for the election of all delegates to National Conventions of political parties at direct primaries, all delegates from that state shall be elected in conformity with such law; and that such call shall provide that in each state which shall have provided by law for the election of the total number of delegates to which that state is entitled, in accordance with the terms of the call issued for the convention, from the state at large, delegates shall be elected in conformity with such law; and that such call provide that the delegates holding the certificates of election from the canvassing board created by state law to canvass the returns and issue a certificate of the election of delegates in a primary election, shall be placed upon the temporary roll by the National Committee.

The plan of reapportionment proposed is set forth in a resolution adopted on the 17th as follows:

Each state shall be entitled in such convention to four delegates at large; one delegate at large for each Representative at large in Congress from any state; one delegate from each Congressional district; an additional delegate from each Congressional district in which the Republican vote for Republican Presidential electors in 1908, or for the Republican candidate for Congress in 1914, shall have been not less than 7,500 in such district, and that for each delegate chosen an alternate delegate shall be chosen in the same manner and at the same time to act in the event of the absence of the delegate.

Provided, however, that the above basis of representation shall not be made the basis for the call for the national convention to be held in the year 1916, unless prior to Jan. 1, 1915, Republican state conventions, held under the laws of the states or called by the Republican state committees of the states, in such number of states as are entitled to cast a majority of the votes in the present Electoral College shall ratify the action of this committee in respect to determining this basis of representation.

The plan is expected to reduce the number of delegates in the next National Convention to 993, the southern states losing 82 and the northern states eight. The states affected are:

	1912	1916
Alabama	24	15
Arkansas	18	15
Florida	12	8
Georgia	28	18
Illinois	58	56
Kentucky	26	25
Louisiana	20	13
Mississippi	20	12
New York	90	86
North Carolina	24	21
Pennsylvania	76	75
South Carolina	18	11
Tennessee	24	21
Texas	40	25
Virginia	24	15
Hawaii	6	2

Republican Principles.—But the Republican party, according to the more radical of the progressive wing, in revising its convention rules has taken only the first step toward rehabilitation. Through the National Committee it has set in motion machinery which will achieve one of the chief reforms for which a national convention was urged by Senator Cummins and other Progressive Republicans, but it has defined no principles or policies nor united its factions under a common leadership. Senator Borah opposed the calling of a national convention in 1914 lest it should finally force the progressives out of the party.

Senator La Follette has affirmed that "the rank and file of the divided Republican forces can only be reunited as they are inspired to believe in the sincerity of purpose and leadership of the reorganization." The party must not compromise principle for the sake of harmony. There has been no evidence that the conservative and reactionary elements in the Republican party are disposed to accept the leadership of Senator La Follette, Senator Cummins and men of that type, nor to bind themselves to the principles and policies which those progressives who still call themselves Republicans deem essential to the "needs of the nation." It appears, therefore, that the reduced Republican party is still divided within itself and that the remnant of progressivism within the party will have to make another fight for the control of the party organization and leadership.

The Progressives on their part have made more positive demurrers to the arguments and efforts of the progressive reorganizers still within the Republican party who urged the reform of convention rules as the panacea for the ills of Republicanism. They claim that the arguments of Senator Cummins and others pleading for a special convention to adopt new rules are based upon two false premises. In the first place, the Republican party did not become divided merely because its National Convention was not truly representative. It was not the unfair "rules of the game" that caused the Progressives to walk out. They knew the handicap of the rules when they entered the contest. The

real cause of complaint was the unseating of delegates from northern and western states who had been regularly elected under the rules. It was the voting of a stolen roll, the substitution by the action of a National Committee of fraudulent delegates for those who had been legally and fairly elected. Another premise of the progressive Republicans to which the Progressives take exception is the assumption that prior to the convention of 1912 there were some 7,000,000 or 8,000,000 Republicans of like mind on important principles, with sufficient community of opinion to hold them together as a political organization. There was no such community of opinion upon a single fundamental principle between the forces of the "old guard" and the progressive Republicans while the contest was being waged within the party. Before confidence in the Republican party could be at all restored among the rank and file of the Progressives it would be necessary for Senators La Follette and Cummins and their progressive colleagues to commit the "stand pat" leaders still in control of the party to the initiative, the referendum and recall, and to a positive and radical programme of industrial reform and social justice. This is not likely to be done, and the Progressives therefore contend that there is no community of political opinion nor a similar tendency and purpose among Republicans and Progressives and that fusion and amalgamation are as likely to be obtained with the Democrats as with the Republicans.

The Progressive Party.—The Progressive conference in Chicago on Dec. 10-11, 1912, was briefly reported in the last issue of the YEAR BOOK (p. 51). It was called to advise with the party committee to formulate plans, to perfect party organization and to push party propaganda. It determined: (1) to establish a permanent publicity bureau in Washington, to gather and publish information as to the form of progressive laws proposed or in force in various states, a new departure in the practice of parties but in keeping with the new party's declaration of its original purposes; and (2) to instruct its Executive Committee to send a commission of seven to Europe, to study the legislation of other countries, to gather information which should be made available to the public by the legislative bureau of the party. It was planned that the party would thus become, in a measure, an organization for research, and that the party managers might become aids in constructive legislation, to act as officials in helping to carry out constructive policies. A Progressive Service was proposed at this conference by Miss Jane Addams, to comprise several distinct lines of activity: education and publicity, for the creation of public sentiment; legislative reference, devoted to the expert drafting and presenting of bills; social and industrial justice, for the study of social wrongs and needs; conservation, for the study of our resources and their uses; cost of living, including the tariff and the trusts; popular government, embracing such subjects as the initiative, referendum, recall, suffrage, etc. All this served to indicate, in a measure, the educational work to be undertaken by the Progressive party.

Mr. Roosevelt addressed the conference advising a distinct organization and a forward party movement. The sentiment reflected in the conference was to the effect that the Progressive party was committed to a definite political programme; that it should not consider the abandonment of its position as a distinct party; that while it would welcome the affiliation of all who would work loyally for the party's policy, the party was not to be looked upon merely as an offshoot of the Republican party, because thousands of Democrats were among its members; and that the party should not consider amalgamation or fusion with any other political body. This policy of independent action has been affirmed in a number of state and sectional Progressive conferences during the year.

On July 2 a Progressive conference in the form of a party rally and "clam bake" was held at Newport, R. I., at the call of the Progressive National Service, which was addressed by Mr. Roosevelt. He called attention to conditions in the West Virginia coal fields as illustrating the

futility of the Democratic and Republican plans of action for the amelioration of labor conditions and the control of large combinations of corporate interests, as indicated by their platforms of the year before. He described President Wilson's "new freedom" for competition as "the old license translated into terms of pleasant rhetoric." Mr. Roosevelt urged invoking the "supervisory, regulatory, controlling and directing power of the Government" for the control of vast capitalistic combinations that may threaten the public welfare, as the Progressives were demanding. He denounced certain injunctions in West Virginia as travesties of justice. The West Virginia courts, he affirmed, had set aside laws that had been passed to remedy the evils, finding constitutional flaws and "repudiating the principle of justice on which the laws were based." Mr. Roosevelt asserted that the "Constitution belongs to the people, not the people to the Constitution; and the courts are the servants of the people precisely as all other public servants, legislative and executive alike."

Mr. Roosevelt on the Progressive Party.—Mr. Roosevelt presented the cause of the Progressive party to the public in an article in the *Century Magazine* for October, 1913. He asserted that the Progressives were "sundered" from "the men who now control and manage the Republican party by the gulf of their actual practices"; the rank and file of the old party have no real power against the bosses. Those who are opposed to popular government within their party system are so opposed for the same reason that they oppose direct primaries, the initiative and referendum, the right of the people to control their own officials, or to oppose the judges in saying what the constitution means or what the constitution permits in the way of legislation for social and economic justice. They do not wish the people to have control of their own political and governmental machinery. They uphold the divine right of the judges to determine what the people may do under their constitution.

As to tariff revision Mr. Roosevelt looked upon it, as far as helping to solve great industrial and social problems goes, "merely as a red herring dragged across the trail to divert our people from the real issues." Again he spoke of President Wilson's "new freedom" as "a meaningless phrase, without one specific proposal for affirmative action," while it "contains repeated, detailed and specific misrepresentations as to the Progressive position." As to state and national powers and areas of action, Mr. Roosevelt contends that the promotion of the people's rights should be the criterion for guidance. Where these interests can best be secured by the enlargement of the rights of the states, the Progressives would stand for state rights; where popular interests can best be promoted by the exercise of the powers of the national government, they are for national rights. The people must have direct control over their own governmental agencies. They may reasonably decide what construction is to be placed upon the constitution, a proposal that has nothing whatever to do with an ordinary case at law.

Election Results.—During the Fall there were two Congressional by-elections, one in Maine, one in West Virginia. At the special election in the Third Congressional District in Maine on Sept. 8, called to fill a vacancy caused by the death of a member, John A. Peters, the Republican candidate, was successful. He received 15,106 votes as against 14,553 votes for the Democratic candidate and 6,487 votes for the Progressive candidate. The Republican plurality was 553 as against 700 of the year before. In the Presidential election of 1912 the vote in the district stood: Wilson, 14,692; Roosevelt, 13,238; Taft, 7,159. In his campaign the Republican candidate appealed for votes on progressive principles. A by-election was held in the First District of West Virginia on Oct. 14 to fill a vacancy caused by the appointment of John W. Davis as Solicitor-General of the United States. M. M. Neely, Democrat, was elected with 14,093 votes to 11,044 for the Republican candidate, 3,717 for the Progressive, and 1,912 for the Socialist.

The general election results in November were decidedly favorable to

the Democrats, indicating a situation among the voters such as was shown in the decisive results in the elections of 1912. The balloting may be fairly interpreted as an endorsement of the Wilson administration and an indication that the opposition is about as evenly divided as in the preceding year. Democratic Governors were elected in the three states where this office was filled, Massachusetts, New Jersey and Virginia. Two Democratic Congressmen were elected in New York City; George W. Loft to succeed the late Timothy D. Sullivan and Jacob H. Cantor to succeed Francis Burton Harrison, who had accepted appointment as Governor-General of the Philippines. In the Third Massachusetts District the Democrats added 1,090 votes to their strength of 1912, the Progressives held their own, being but two short, while a Republican plurality of 3,203 in 1912 was reduced to a plurality of only 155 in 1913. Democrats were elected also in the Third Maryland and Second Georgia Districts. These "by-election" results may be interpreted as indicating that the Democrats maintained their ground in contests in which national issues were predominant; that the net result would seem to indicate a "vote of confidence" in the Wilson administration, and that there was no rising dissent in the country against the one important achievement of the Democratic party and its leader, the revision of the tariff downward.

In Massachusetts, Lieutenant-Governor David I. Walsh (Democrat) was elected Governor by a plurality of 53,691, Charles S. Bird (Progressive) receiving 126,677, Augustus P. Gardner (Republican) 116,314, and Governor Eugene N. Foss (Independent) 20,810. The notable feature in this election was the increased strength of the Progressives. They increased their vote over the previous year and came to occupy second place in the state, also gaining the balance of power in the Legislature, which stands: Republicans, 117; Democrats, 103; Progressives, 17; Independents, two; Socialist, one.

In New Jersey, on the other hand, the Republicans gained at the expense of the Progressives, and the results there are as encouraging to the Republicans as they contemplate the future of their party, as those in Massachusetts were to the Progressives. James M. Fielder (Democrat) was elected over ex-Governor Edward C. Stokes (Republican) by a plurality of 22,000, while the vote of the Progressive candidate, Everett Colby, declined to about 45,000, as against 145,000 cast for Mr. Roosevelt the year before. This reverses the position of last year, the Republicans coming into second place. The Progressives account for the decline of their vote by the claim that many New Jersey Progressives wished to sustain the Wilson administration, and to make sure of preventing the return of the Republicans to power in New Jersey they voted directly for the Democratic candidate, Mr. Fielder.

In Maryland the Democrats elected Blair Lee to the United States Senate by a plurality of more than 30,000.

The most significant municipal election was that in New York, which elected the Fusion nominee for Mayor, John Purroy Mitchel, against the Tammany nominee by a plurality of more than 121,000 votes. The rest of the Fusion ticket, including William A. Prendergast for City Controller, and George McAneny as President of the Board of Aldermen, were also elected by decisive pluralities, a result which will deprive Tammany of the support of public patronage for four years to come. This is one of the most disastrous defeats the Tammany Democracy has ever experienced. It was intensified by the election of a Republican Assembly in the state. Tammany completely dominated the Assembly of 1913, to the extent of forcing the impeachment of the Governor, William Sulzer (see *supra*). Sulzer was elected to the Assembly on the Progressive ticket, while many of the Tammany-controlled legislators who had voted to impeach him were defeated, another indication of the disposition of the voters to strike at Tammany. The whole result is taken to indicate the beginning of a reconstruction of the Democratic party in New York.

Four cities in Ohio elected Socialist Mayors: Coshocton, Hamilton, Martin's Ferry (reëlected), and Shelby.

The general result of the Fall elections seems to indicate that the final outcome of the struggle between the Republicans and the Progressives is yet to be determined. The Fall results in Massachusetts and in New Jersey seem to neutralize one another and leave the situation still in deadlock. The student of politics must look to the elections of 1914 for indication as to the ultimate disposition of these parties.

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II. POPULAR GOVERNMENT AND CURRENT POLITICS

ARTHUR N. HOLCOMBE

PROGRESS OF POPULAR GOVERNMENT

The most striking event of the year 1913 in connection with the progress of popular government was the ratification by the necessary three-fourths of the states of the Seventeenth Amendment to the Federal Constitution, providing for the direct election of United States Senators by the people. During the year the cause of votes for women continued its remarkable gains of recent years and acquired greater strength than ever before. The electoral franchise was conferred upon women in the territory of Alaska, and, so far as lay in the power of the legislature, in the state of Illinois. In addition there are ten states in which the question of extending the suffrage to women is a campaign issue to be settled by the people in 1914 or one of the two following years. The total number of woman suffrage states at the end of 1913 was 10. The state-wide direct primary was established in two states in which it had not previously existed, raising the total number of states possessing the state-wide direct primary to 38. Presidential preference primaries were provided for in at least five states, raising the total number of states possessing the presidential preference primary to 17. The non-partisan method of nominating and electing judges was adopted in six states, and preferential voting was adopted in another state for use in making primary nominations. The initiative, referendum, and recall were adopted in one state, and provision for submitting the two former to the people was made in five other states, where they do not now exist. The total number of states in which the initiative and referendum do now exist is 18 (though in Utah legislation necessary to put the system of direct legislation into effect has never been enacted), and in two states, New Mexico and Massachusetts, the referendum exists alone. The state-wide recall now exists in eight states, and has been proposed for adoption in four others. Finally, the reform of all branches of state government has become one of the questions of the day.

DIRECT ELECTION OF UNITED STATES SENATORS

Ratification of the Seventeenth Amendment.—On May 31, 1913, the Secretary of State proclaimed the ratification of the Seventeenth Amendment to the Federal Constitution by three-fourths of the 48 states. Thus the direct election of Senators by the people, already established in fact in half of the states of the Union (*A. Y. B.*, 1912, p. 58), becomes established by law in all. The twelve states which failed to ratify the amendment before the issue of the Secretary of State's proclamation included the six states of the lower South extending from South Carolina to Louisiana; four of the South-Middle states, namely, Delaware, Maryland, Virginia, and Kentucky; and also Rhode Island and Utah. Virginia, Kentucky and the six states of the lower South already possessed the virtual direct election of Senators by means of party rules of the dominant party or of optional direct primary laws accepted by the dominant party, and Maryland had taken steps towards the establishment of a similar practice. Consequently Delaware, Rhode Island and Utah were the only states in which

STATUS OF POPULAR GOVERNMENT

STATE	Woman Suffrage[2]	Initiative and Referendum[3]	Recall[4]	Direct Primary[5]	Presidential Preference Primary[6]
Ala[7]	.....	.....	.....	P. R[8].	.....
Ariz[9].	1912	1911	1911–12	1909–12	.....
Ark.	.....	1910	.....	P. R.[8]	.....
Cal.	1911	1911	1911	1909	1911
Colo.	1893	1910	1912	1910	.....
Conn.	.....	.....	.....	.....	.....
Del.	.....	.....	.....	.....	.....
Fla.	.....	.....	.....	1913	.....
Ga.	.....	.....	.....	P. R.[8]	.....
Idaho.	1896	1912	1912	1909	.....
Ill.[10].	1913	.....	.....	1910	1912
Ind.	.....	.....	.....	.....	.....
Iowa	*1916*	*1916*	.....	1907	1913
Kan.	1912	.....	*1914*	1908	.....
Ky.	.....	.....	.....	1912	.....
La.	.....	.....	.....	1912	.....
Me.	.....	1908	.....	1911	.....
Md[11].	.....	.....	.....	.....	1912
Mass.	.....	1913[15]	.....	1911	1912
Mich.	.....	1913	1913	1909	1912
Minn.	.....	*1914*	*1914*	1912	1913
Miss.	.....	.....	.....	.....	.....
Mo.	.....	1908	.....	1907	.....
Mont.	*1914*	1906	.....	1912	1912
Neb.	.....	1912	.....	1907	1911
Nev[12].	*1914*	1904–12	1912	1909	.....
N. H.	.....	.....	.....	1909	1913
N. J.	*1914*	.....	.....	1911	1911
N. M[13]	.....	1911[15]	.....	.....	.....
N. Y.	*1915*	.....	.....	1913	.....
N. C.	.....	.....	.....	.....	.....
N. D.	*1914*	*1914*	*1914*	1907	1911
Ohio.	.....	1912	.....	1908	1913
Okla.	.....	1907	.....	1908	.....
Ore.	1912	1902	1908	1904	1910
Pa.	*1916*	.....	.....	1913	1913
R. I.	.....	.....	.....	.....	.....
S. C.	.....	.....	.....	P. R.[8]	.....
S. D.	*1914*	1898	.....	1907	1912
Tenn.	.....	.....	.....	1909	.....
Tex.	.....	*1914*	.....	P. R.[8]	.....
Utah[14]	1896	1900	.....	.....	.....
Vt.	.....	.....	.....	.....	.....
Va.	.....	.....	.....	1912	.....
Wash.	1910	1912	1912	1907	.....
W. Va.	.....	.....	.....	.....	.....
Wis.	.....	*1914*	*1914*	1903	1911
Wyo.	1869	.....	.....	1911	.....
Alaska	1913	.....	.....	.....	.....
Total.	10 +*8*	19+*5*	8+*4*	38	17

[1] Dates in *italics* are those of proposed submission to the people. [2] Votes have also been granted to women in school or other local elections in 21 states where full equal suffrage has not yet been granted. [3] The constitutional initiative has been established in only 11 of these states, the others restricting the initiative to statutes. Four of the 5 states in which the initiative is to be submitted to the people have proposed both the constitutional and the statutory initiative. [4] The recall is not applied to judges in three states where the recall has already been established and in one where it is proposed for adoption. [5] Two additional states, Maryland and North Carolina, have established the direct primary by law in an incomplete form. [6] In some of these states, as New Hampshire, the people do not indicate their preference by a direct vote on Presidential candidates. [7] In Alabama and the southern states generally the direct primary was originally established by voluntary rules of the Democratic party, and in Alabama and a few others it has not yet been perfected by legal enactment. [8] P. R. indicates direct primary by party rules. [9] In Arizona the recall was first adopted in 1911 and extended to judges in 1912. The direct primary was first established by the territorial legislature and extended by the first state legislature. [10] In Illinois votes have been granted to women for statutory, but not for constitutional offices. [11] In Maryland the Presidential preference primary, like the state-wide direct primary, is advisory only, and final action with respect to delegates-at-large and candidates for offices filled by election in the state-at-large is taken by the regular party state conventions. [12] In Nevada the referendum was established in 1904 and the initiative was added in 1912. [13] In New Mexico the referendum exists in a limited form, but there is no popular initiative. [14] In Utah the initiative and referendum were adopted in 1900, but legislation necessary to put them into effect has never been enacted. [15] Referendum only.

the Seventeenth Amendment was neither virtually anticipated by the people nor promptly adopted when submitted to them.

Supplementary State Legislation.—The procedure for the direct election of Senators by the people is complete without the enactment of further legislation by the states. The state legislatures, however, are permitted by the Seventeenth Amendment to authorize the governors to make temporary appointments to the Senate, pending the filling of casual vacancies by the people. If the legislatures do not choose to avail themselves of this permission, governors must issue writs for an immediate election when casual vacancies occur. Moreover, special legislation is necessary in order to bring the nomination of Senators within the scope of the direct-primary laws in those states which have not already provided for the direct nomination of Senators. The now obsolete Oregon plan for the direct nomination and election of Senators was adopted in 1913 in Iowa and Ohio, and in Vermont the legislature voted to submit to the people in 1914 the futile question whether provision should be made by law for a popular

advisory vote upon Senatorial candidates to assist the legislature in making future elections. A few of the states adopted legislation in 1913 providing for the direct nomination as well as election of Senators, but most of the states permitted the status of Senatorial nominations and elections to remain as determined by their previous legislation and the Seventeenth Amendment. (See also I, *American History.*)

WOMAN SUFFRAGE

State Legislation.—The "votes for women" campaign before the legislatures of 1913 was the most successful in the history of the cause. In Alaska the new territorial legislature by its first act at its first session extended the franchise to all women in the territory on the same terms as men. In Illinois the legislature, prevented by the cumbrous machinery for the amendment of the constitution of that state from submitting a full suffrage amendment to the people, granted to the women of the state the right to vote for Presidential electors and for all state and local officers whose election is not restricted to men by the state constitution. This measure does not grant the right to vote for United States Representatives and Senators, nor for members of the state legislature, the Governor, and judges of the higher state courts, but it covers such state officers as trustees of the state university, and a large number of municipal and other local officers. In nine other states the legislatures provided for the submission to the people of constitutional amendments granting to women full political equality with men. In one of these states, Michigan, the amendment was submitted to the people in April, 1913. In four of the states, North and South Dakota, Montana and Nevada, the amendments will be voted on at the general elections in the fall of 1914. In the other four, Iowa, New Jersey, New York and Pennsylvania, the amendments must be approved by a second legislature before they can be voted on by the people, and consequently they may not be finally submitted to the people until 1915 or 1916.

Amendments to State Constitutions.—The campaign to secure the approval of the people for woman-suffrage amendments to state constitutions was less conspicuously successful. Michigan was the only state in which the electorate passed upon such a measure. In Michigan the legislature of 1912 provided for the submission of an amendment the same year, and at the general election in November it was defeated by 760 votes. There was reason to believe, and it was commonly believed, that this adverse result was obtained by a fraudulent count, and the legislature of 1913 promptly provided for resubmission at the spring elections. The measure was then defeated a second time by a vote of 168,738 yeas to 264,882 nays. In addition to the eight states in which, during 1913, action was taken by the legislatures for the future submission of constitutional amendments to the people, there are six other states, namely, Michigan, Ohio, Oklahoma, Arkansas, Missouri, and Nebraska, in which constitutional amendments may be submitted directly to the voters without the intervention of the legislatures, through the use of the constitutional initiative.

Woman Suffrage a National Issue.—In the northern and middle-western states generally the advocates of votes for women have been more active during 1913 than ever before. In the southern states, where interest in equal suffrage has developed less rapidly than in other parts of the country, the leaders of the cause took an important step by calling for a conference at New Orleans in November, to which the governors of 14 states were invited to come in person or by proxy, for the purpose of discussing a uniform plan of action for the adoption of woman suffrage in the South. The National Council of Woman Voters, consisting of enfranchised women, has for its object the influencing of Federal legislation to secure the ballot for the women who have not yet received it. In conjunction with the National American Woman Suffrage Association, representing woman suf-

fragists in all the states, it secured hearings before the Committees on Woman Suffrage of both the House of Representatives and the Senate at the special session of Congress. The Committee of the Senate, moreover, made a favorable report (Senate Doc. 155, 63d Cong., 1st sess.) on the proposal to establish equal suffrage by an amendment to the Federal Constitution.

At the present time 64 of the 435 Representatives and 20 of the 96 Senators are representatives of equal-suffrage states. In the Electoral College the 10 equal-suffrage states have a representation of 84 out of a total electoral vote of 531. In these same states the total number of women of voting age, acording to the census of 1910, was 3,565,564. The number of women of voting age in the eight states in which the legislatures voted in 1913 to submit the question of woman suffrage to the people between now and 1916 is 6,568,306. The number of women of voting age in the six states in which the question may be submitted to the people before 1916, upon the direct initiative of the people is 4,086,754. Woman suffrage has thus ceased to be a mere local issue in the West, for the West is almost solidly for it, and has become a national issue.

ELECTORAL REFORM

Registration of Voters.—The compulsory registration of qualified voters was first introduced to combat the evil of illegal voting in large cities and has gradually been extended throughout the country. In some states it is required of all voters in the state, but in most it is confined to the cities. In a few states it is required to be done afresh each year, but in most, at any rate outside of the largest cities, annual registration is unnecessary. Down to the close of 1912 compulsory registration, partial or complete, had been established in 41 states, and in 1913 it was introduced into Indiana, leaving only three New England states, New Hampshire, Vermont, and Rhode Island, and North Dakota, Arkansas and Oklahoma, without any laws for compulsory personal registration. In 17 of the states where personal registration is required, the voter is also required to declare his party affiliation in order to participate in official primary elections. In the other states there is no official party enrolment, and participation in the official primaries is open to all voters irrespective of party. Where party enrolment exists, the test of party affiliation is prescribed by law, and the party becomes in a very literal sense an instrument of government. A majority of the states permit the party to remain nominally a private association. They endow it nevertheless with important public functions, and subject it to a considerable degree of public regulation, practically depriving it of the power of self-government. It cannot be said, however, that there is any perceptible tendency towards a uniform practice with regard to party enrolment and the test of party affiliation.

Ballot Reform.—It has long been recognized that the form of the ballot is an important factor in securing a true expression of the will of the voters. It was this recognition, together with the demand for secrecy in elections, that led to the introduction of the Australian ballot, beginning in Massachusetts a quarter of a century ago. The Australian ballot, as adopted in Massachusetts, contains the names of all the candidates for each office printed together under the title of the office. The names are arranged in alphabetical order and contain no indications of party affiliation except the name of the party printed in smaller type on the same line after the name of the candidate. Obviously this type of ballot cannot be voted by an illiterate voter without assistance. In order, therefore, to make it possible for illiterate voters to vote a secret printed ballot, and incidentally also to encourage the voting of straight party tickets, the Australian ballot was modified in many states by the introduction of party emblems and the arrangement of the names of all candidates of a single party in a single column beneath the party emblem. Thus a single cross-mark against the party emblem would suf-

fice to vote the entire party ticket. This modification of the Australian ballot is often called the New York ballot, from the state where it was first introduced. Both the Massachusetts and the New York forms of the Australian ballot have been altered more or less in various states by the addition or subtraction of party emblems and squares, but in the main that classification is still sufficiently accurate. Down to the close of 1912, the Massachusetts ballot had been introduced in 15 of the 48 states, the New York ballot had been introduced in 27 states, and in six states there was no legal form of the ballot, or other systems prevailed. The Massachusetts ballot has the advantage that it compels the voter to know his own mind with respect to each candidate for whom he votes and thus encourages independent voting. The New York ballot has the advantage that it saves the voter the trouble of voting separately for candidates for minor offices, concerning whose personal qualifications for office he can in practice know little or nothing, and thus encourages the habit of party regularity. Recently there has been a visible tendency to encourage independent voting and discourage party regularity by abolishing the party column and also, in states where illiterates are not permitted to vote, the party emblem; that is, a tendency to move from the New York form and towards the Massachusetts form. In 1913 New York adopted the Massachusetts ballot in dramatic circumstances (see I, *American History*), and Kansas also abandoned the New York form.

Polling Places in Schools and Public Buildings.—A wholesome movement for more adequate and decent polling places is being advanced in many places. In the city of Los Angeles the actual expense for the fiscal year ending June 30, 1910, for rent of polling places, rent of fixtures, and transfer was over $15,000. For the fiscal year ending June 30, 1911, it was at least $20,000, because the number of precincts had been considerably increased. The suggestion was made that there was a great deal of property belonging to the city in various locations that could very well be used for the purpose of polling places and elections at considerable advantage and with great economy, especially the public schools. The plan was tried at the succeeding election in Los Angeles and has been followed since to the satisfaction of the voting public. In Milwaukee the question was put to the school principals and as they were unanimously favorable, the school houses there have been similarly used. In an election in June, 1911, every school house in Salt Lake City was used. School houses have likewise been used in Grand Rapids, Mich., Madison, Wis., and Worcester, Mass. Movements to the same end have been inaugurated in a number of other cities. (See *National Municipal Review*, July, 1913.)

PRESIDENTIAL PREFERENCE PRIMARY

Adoption in 1913.—The system of direct nominations by the people of candidates for the Presidency has been further extended during 1913. The system was employed in 10 states during the primary campaign of 1912, and was adopted, though not in time for use, in two other states (*A. Y. B.*, 1912, pp. 61-63). In 1913 so-called Presidential preference primary laws were adopted in Iowa, Minnesota, New Hampshire, Ohio, and Pennsylvania, and provision for submitting to the people the question of adopting some kind of Presidential preference primary was made in Vermont. More than a third of the states now possess the direct Presidential preference primary in one form or another. Several other states deliberated over the adoption of some system for the direct nomination of Presidential candidates, but deferred action.

Classification of Systems.—There is no uniform system of Presidential preference primaries. The laws passed by the several states differ in a variety of respects, but the most important differences are found in the methods adopted for giving effect to the popular preference as expressed in the primaries. The laws of the several states may be classified upon this basis into three groups: (1) laws

making no provision for a direct vote by the people upon particular candidates for the Presidential nominations, but permitting the people to vote directly upon candidates for election as delegates to the National Conventions, who in turn may or may not be pledged upon the ballot to support a particular candidate at the convention; (2) laws providing for a direct expression of the popular preference between the various candidates for Presidential nominations, but making no provision for binding the delegates to National Conventions to support any particular candidate; and (3) laws providing both for a direct expression of the popular preference between Presidential candidates and for binding the delegates to National Conventions to support the candidates preferred by the people. The first class of primaries afford an opportunity for the expression of the popular preference only indirectly; the second class secure a direct expression of the preferences of the people, but do not ensure that such preferences will be strictly followed by the state delegations at the National Conventions; the third class not only secure a direct expression of the popular will, but also make it probable that the people's choice will not be disregarded.

Laws of 1913.—The only state to adopt a law of the first class in 1913 was New Hampshire. This law is much like that adopted in South Dakota in 1912 (*A. Y. B.*, 1912, p. 62), and, like that law, might easily have in practice the effect of obscuring rather than expressing the popular preference if more than one delegation should be pledged on the ballot to the same candidate, or if several similar candidates should split the vote of the predominant element in a party. In 1913 laws of the second class were adopted in Iowa and Minnesota. The former expressly provides that the direct popular vote on Presidential candidates is to be regarded simply as an expression of the sentiment, not of the will, of the people, and makes no special provision for pledging delegates either to support particular candidates or to heed the people's "sentiment." The latter, on the other hand, expressly provides that the delegates to National Conventions shall, to the best of their ability, carry out the preferences of the party as expressed at the primary. This seems to be the intent of most of the laws falling within this class, although no special precautions are taken to prevent delegates from proving unfaithful to their trust. In some cases, indeed, as in that of the Maryland law of 1912, the selection of delegates is left to state conventions which are actually, though perhaps not morally, free to disregard with impunity the preferences expressed by the people. In other cases, candidates for election as delegates may be permitted, as in Massachusetts in 1912, to pledge themselves to support either a particular candidate or the people's choice, although not expressly authorized to do so by law. If such pledges are taken, the practice becomes similar to that which is expressly required by laws of the third class. In two states, Oregon and Montana, the delegates are elected by a system of limited voting, each voter voting for one delegate only, regardless of the number to be elected, thus providing roughly for the proportional representation of factions within the parties. This system, however, was not adopted in any state in 1913. The states to adopt laws of the third class in 1913 were Ohio and Pennsylvania. These laws follow the principle of the law adopted in New Jersey in 1911 (*A. Y. B.*, 1912, p. 62), and are alike in offering to the candidate for election as delegate to a National Convention the opportunity to pledge himself to support the choice of his party in the state or district for the Presidential nomination. If he does not accept that opportunity, the fact is indicated on the ballot. Thus in effect the now obsolete Oregon plan for the direct election of United States Senators has been applied to the direct nomination of candidates for the Presidency.

Other important provisions contained in the Presidential preference primary laws of 1913 are worthy of notice. In Ohio, for example, the candidate for election as delegate to a National Convention is required to indicate his first and second personal choices for Presidential nominee of his party, in order that the voter

may not only indicate his preference, but also select the delegate best fitted to carry his preference into effect. This provision also serves the useful purpose of preventing candidates for election as delegates from concealing their real preferences behind insincere declarations in favor of the nomination of some "favorite son" of the state who in fact has no chance of securing the nomination. In Pennsylvania it is provided that Presidential electors shall be appointed by the official party candidates for the Presidency, instead of being nominated, as in most states, by state conventions which may not be in sympathy with the regular party organization, or, as in a few states, directly by the party voters who may subsequently refuse to abide by the result of the National Convention. In Minnesota the Presidential electors are to be nominated directly by the party voters, but the representative on the National Committee, instead of being chosen directly by the voters, as in several of the direct-primary states, is to be appointed by the delegates and alternates to the National Convention immediately after the nomination of the Presidential candidate, as has been the custom in the past. In Iowa the voters of each party are to indicate at the primary whether they desire district delegates to look to the vote of the district in which they are chosen or to that of the state at large for the expression of sentiment which they are expected to reflect. Thus it becomes possible for the different parties to adopt or reject the unit rule for the polling of state delegations at National Conventions. If, however, the Republican voters at the 1916 primary should adopt the unit rule, or if the Democrats should reject it, there is no means of compelling the respective National Conventions to reverse their traditional policies in that regard out of consideration for the "sentiment" of Iowa voters. The importance of all these features of the Presidential preference primary laws of 1913 was made clear by events connected with the Presidential campaign of 1912 (*A. Y. B.*, 1912, pp. 5-10, 25, 26). In Minnesota the public nature of the work of National Conventions has been recognized by providing that delegates shall be paid for attendance, but this feature of the original Oregon plan for direct Presidential preference primaries has not been generally imitated (*A. Y. B.*, 1911, pp. 186-187). The lack of uniformity in Presidential preference primary laws has created a demand, as noted in the YEAR BOOK for 1912 (p. 63), for a national law establishing a uniform test of party affiliations, to the end that there may be a due separation of state and national issues.

President Wilson's Message.—President Wilson, in his annual message to Congress on Dec. 2, advocated the enactment of legislation which will provide for primary elections throughout the country at which the voters of the several parties may choose their nominees for the Presidency without the intervention of nominating conventions. He suggested that this legislation should provide for the retention of party conventions, but only for the purpose of declaring and accepting the verdict of the primaries and formulating the platforms of the parties. He further suggested that the party convention should consist not of delegates chosen for this single purpose, but of the nominees for Congress, the nominees for vacant seats in the Senate of the United States, the Senators whose terms have not yet closed, the National Committee, and the candidate for the Presidency himself, in order that platforms may be framed by those responsible to the people for carrying them into effect.

THE DIRECT PRIMARY

Legislation in 1913.—Many of the states made minor changes in their direct primary laws during 1913, but few made changes of importance. Pennsylvania and New York were the only new states to adopt state-wide direct primary laws. In Vermont provision was made for taking a vote of the people in 1914 on the question of establishing the direct primary, and in South Dakota a new measure was prepared by the legislature to be submitted to the people in 1914 as a substitute for the "Richards" primary

law as adopted by the people in 1912 (*A. Y. B.*, 1912, p. 60). In Florida a state-wide direct primary law was adopted to supplant the former direct primary held under a rule of the Democratic party, and a system of preferential voting was adopted also. The adoption of the new law in New York, superseding the law of 1911 (*A. Y. B.*, 1911, p. 185), is noted on another page (see I, *American History*).

The most significant innovation of the year was in Minnesota, where the system of non-partisan primaries, first established in 1912 for the selection of candidates for judicial, county, and first-class municipal offices, was extended to second-class cities and to all candidates for either house of the legislature. The preferential voting system is confined to partisan primaries, and at non-partisan primaries two candidates for each office are to be selected to go on the ballot at the ensuing general election. This is the first instance of the abolition of the party label in the nomination and election of members of a state legislature, although the movement to abolish the party label in municipal and judicial elections has been well under way for several years.

Non-Partisan Judicial Nominations.—In recent years there has been a pronounced tendency towards the removal of judicial candidates from the ordinary partisan ballot and the printing of a separate non-partisan ballot upon which alone the names of candidates for judicial offices should appear. The change from a partisan to a non-partisan system of electing judges involves a corresponding change in the method of nominating judicial candidates. These changes were made in 1911 in three states, California, Ohio, and Washington; in 1912 in Minnesota; and in 1913 in six other states, Idaho, Iowa, Kansas, Nebraska, Pennsylvania and Missouri. A typical arrangement is that of Kansas. The law of 1913 provides that there shall be a separate ballot at the regular official primaries, containing the names of all persons nominated by petition for judicial offices without party designations of any sort. This ballot shall be handed to voters of all parties, and each voter may vote for not more than one candidate for each judicial office. The two candidates for each position receiving the highest votes at the primary go upon the ballot at the succeeding general election, again without party designation of any sort. Similar systems prevail in Nebraska and Pennsylvania, but in Iowa and Idaho the voter at the primary is instructed to vote for twice as many candidates as there are offices to be filled, a provision which apparently would make it possible for the voters of the majority party to nominate all the candidates. The system of preferential voting which was adopted in Idaho in the primary law of 1909 was not extended to non-partisan judicial nominations. The Missouri measure provides that candidates for judicial offices shall be nominated by delegate conventions, the delegates to which shall be chosen at the regular primaries on a non-partisan ballot. All these measures testify to the fact that the prevailing partisan methods of nominating and electing judicial officers have proved unsatisfactory to the people. (See P. O. Ray, *An Introduction to Political Parties and Practical Politics*, Scribners, 1913.)

DIRECT LEGISLATION

Extensions in 1913.—During 1913 proposals for constitutional amendments to establish the initiative and referendum were adopted by the legislatures of seven states, Iowa, Michigan, Minnesota, Missouri, North Dakota, Texas and Wisconsin. The Michigan amendment was submitted to the people in April, 1913, and adopted by a vote of 219,057 for, to 152,388 against, the statutory initiative and referendum, and by a vote of 204,796 for, to 162,392 against, the constitutional initiative. The Iowa amendment must be accepted by the next legislature before it can be submitted to the people, and cannot be adopted until 1915 or 1916. The North Dakota and Wisconsin amendments had already been approved by one legislature (*A. Y. B.*, 1911, p. 183) and will be submitted to the people in 1914. The amendments in the other states require the approval of only one legis-

lature and will therefore be likewise voted on by the people of 1914.

In Missouri the proposed amendment is intended to restrict the scope of the existing procedure for direct legislation by the people, originally adopted in 1908. In that state the initiative was employed in 1912 to submit to the people a proposal to establish the single tax, and although the measure was defeated by an overwhelming majority, the legislature yielded to the clamor to prevent so far as possible the resubmission of a single-tax measure in the future. The proposed amendment, therefore, provides that the initiative may not be used to classify property for the purpose of putting a single tax on land or land values or of taxing land at a higher rate or by a different rule than other property. In addition it provides that no measure once submitted and rejected may be resubmitted within five years. In North Dakota the fear that the constitutional initiative might be used to attack state-wide "prohibition" prevented the adoption of any proposal to establish the constitutional initiative. The measure to be submitted to the people in that state provides only for the establishment of the indirect statutory initiative and of the referendum on acts of the legislature. In Kansas the same desire to protect the prohibition system against attack by means of the constitutional initiative prevented the submission of any proposal whatever, although a majority of both branches of the legislature were pledged thereto. In Illinois, where the demand for the initiative and referendum has long been insistent (*A. Y. B.*, 1911, p. 183), the opponents of the measure were again able to accomplish its defeat. In Massachusetts the legislature enacted a public policy law like that in force in Illinois for over a decade with such little effect, and also endorsed a second time a constitutional amendment, which was subsequently adopted by the people, to enable the legislature to refer measures to the people. Thus altogether during 1913 the referendum in a limited form was adopted in one state, the initiative and referendum were adopted in one state, and provision was made for their future submission to the people in five other states, two of which had already (1911) taken the preliminary steps for such submission. In one other state, in which the initiative and referendum already exist, it is proposed to submit to the people a proposition to restrict the scope of direct legislation by the people in the future.

Laws of 1913.—The initiative and referendum measures proposed for submission by the legislatures of 1913 show a marked tendency to depart from the simplicity and directness of the well-known Oregon plan. Indeed, this tendency first appeared in Wisconsin in 1911 and was sustained in Ohio in 1912 (*A. Y. B.*, 1912, p. 64). The measures proposed in 1913 in Minnesota and Iowa are especially interesting from this point of view. The Minnesota measure provides that a law or constitutional amendment may be initiated upon petition of not less than two per cent. of the voters (as indicated by the number of votes actually cast at the last preceding election) and thus compulsorily introduced into the legislature. If not adopted by the legislature, the measure in its original form or in one or more amended forms may be submitted to the people upon petition of an additional six per cent. of the voters, in case the measure is an ordinary bill, or of an additional eight per cent. of the voters, in case the measure is a proposal for an amendment to the constitution. In the former case the measure requires for approval by the people a majority of the votes cast thereon, in the latter case it requires a majority of all the votes cast at the election or four-sevenths of those voting thereon, being not less than three-sevenths of all those voting at the election. Thus the distinction between statutory and constitutional law is intended to be preserved. Acts of the legislature may be referred to the people for their approval or disapproval upon petition of not less than six per cent. of the voters, but no such referendum petition shall operate to suspend the execution of a law, pending its submission to the people, unless signed by at least 15 per cent. of the voters. This provision is designed to prevent the abuse of the referendum by interests which plan to delay, even when they

cannot hope to defeat, the execution of the popular will. The Minnesota measure furthermore explicitly provides that legislative measures adopted by the people shall not be subject to the gubernatorial veto and shall not exceed the limitations imposed by the constitution upon the legislature. There is no means provided, however, for preventing the enactment of unconstitutional legislation by the people, although of course the courts would be free to refuse to enforce such legislation.

The Iowa measure recognizes this difficulty and provides that the Secretary of State shall submit all measures initiated by the people to the Supreme Court of the state for an opinion concerning their constitutionality. The court must report within 20 days, and if its report is unfavorable to the constitutionality of a proposed measure, the Secretary of State must refuse to submit it to the people. The Iowa measure also distinguishes between constitutional and statutory legislation by the people by providing that the former must be submitted and adopted at two successive regular biennial elections, adoption at the first election to operate merely as a resolve of the people ordering the second and final submission. The statutory referendum is designed to apply, like the gubernatorial veto, not only to acts of the legislature, but also to parts, sections, or items of acts. In both Minnesota and Iowa the people are to be informed concerning the details of proposed measures and the arguments *pro* and *con* by official publicity pamphlets, as in Oregon.

In Washington the legislature of 1913 passed an interesting act designed to supplement the constitutional amendment adopted by the people in 1912. In most of the states the procedure for direct legislation has required action by the legislature to supplement the amendment adopted by the people, and in one state, Utah, the legislature has abused its responsibility by refusing to enact the necessary legislation, thus defeating for all practical uses the purpose of the amendment. The various details of the procedure in the several states under the initiative and referendum have been fully described in the YEAR BOOK (1911, pp. 180-83), but in the state of Washington the law has introduced some innovations worthy of notice. First, it provides that each measure proposed for initiation by the people shall be provided with a ballot title before the circulation of the initiative petitions is begun. This ballot title shall be prepared by the Attorney-General on request of the Secretary of State, and shall contain in not more than 100 words an accurate description of the nature and contents of the measure proposed for initiation. It shall be placed at the head of each paper on which signatures to the petition for the initiation of the measure are to be obtained. In case of dispute between the initiators and the Secretary of State, concerning the fairness of the ballot title, the former may appeal to the Superior Court for a final adjudication. Second, it provides that the initiators shall file with their petition a full statement of the source and amount of all contributions to the fund employed in financing the initiation proceedings as well as of the nature and amount of all expenditures. Thus the principle of publicity for the regulation of campaign finances is extended to the financing of campaigns for measures as well as for candidates. Third, it provides that the Attorney-General shall also formulate a ballot title for any competing measure that may be submitted by the legislature, indicating clearly the differences between the measure of the legislature and that of the original initiators. The ballot is then to be prepared in such a way that the voter may express his preference (1) between either measure and none at all, and (2) directly between the two measures. If a majority of those voting thereon prefer either measure to no measure at all, one or the other must be declared adopted. That one will be declared adopted for which the greater number of voters expressing a preference have indicated their choice. Thus the voter must vote twice in order to express his choice in full, but if he does so, his preference is indicated with perfect accuracy, which is not the case under the more usual methods of determining the choice of the voters when competing measures are

submitted on the same ballot. Fourth, the Washington law of 1913 provides for the editing of the official publicity pamphlet by a state board of censorship, consisting of the Governor, the Attorney-General and the Superintendent of Public Instruction. This board is instructed to exclude from the pamphlet all matter which in their opinion is vulgar, obscene, profane, scandalous, libellous, defamatory, treasonable, provocative of disturbances of the peace, or unmailable under the postal regulations. Otherwise the proponents and opponents of measures have the usual privileges of submitting arguments.

Publicity Pamphlets.—The states which have adopted the initiative and referendum recently have almost all made provision for informing the people concerning the details of all measures and the arguments *pro* and *con* by official publicity pamphlets, as in Oregon. Usually these pamphlets are to be prepared under the direction of the Secretary of State and distributed directly by him to the voters. In a few states, however, political exigencies have caused the adoption of the much more expensive mode of securing publicity for proposed measures by advertising in newspapers. Among the states having the initiative and referendum, Nebraska, Ohio, and Washington provided in 1913 for official state publicity pamphlets, but Colorado made provision for advertising both the texts of measures and arguments in two newspapers in each county representing the two leading parties. Proponents and opponents of measures are required to deposit in advance 50 cents per page per thousand copies of circulation, and the publishers are required to print measures and arguments in special pamphlets to be issued as supplements to their papers and to be placed in the hands of all voters. Provision is also made for the publication of statements and arguments of state and national candidates upon the same conditions.

THE RECALL

Extension during 1913. — During 1913 proposals for constitutional amendments to establish the recall were adopted by the legislatures of five states, Kansas, Michigan, Minnesota, North Dakota and Wisconsin. In Michigan the amendment was submitted to the people in April and adopted by a vote of 237,743 to 145,412. In Wisconsin and North Dakota the recall amendments were first adopted by the legislatures of 1911 and, having been endorsed by the legislatures of 1913, will be submitted to the people in 1914. In Kansas and Minnesota only one legislative adoption is necessary, and consequently the amendments in those two states will also go to the people in 1914. In Michigan and Wisconsin the recall is to apply to all elective officers except judges, in North Dakota to all elective officers, and in Kansas and Minnesota to all officers, elective and appointive. The effect of the action of these five states is to establish the recall in eight states, and to provide for its possible adoption in 1914 in four more states.

Laws of 1913.—In most respects the recall proposals of 1913 follow the practice established in the measures of earlier years. The Minnesota proposal requires a 20 per cent. petition to order a state-wide recall election, allows the petitioners 200 words on the ballot in which to state the grounds for the recall, and provides that the only question to be determined at the election shall be that of recalling the officer against whom the petition is directed. If the recall is ordered by those voting thereon, the vacancy thus created shall be filled in the manner provided by law for the filling of other vacancies. The Kansas proposal introduces an innovation in the form of a requirement that a petition for the recall of any officer may be signed only by citizens who actually voted for the election of the officer against whom the petition is directed or for the officer who appointed him, if the officer to be recalled is not an elective, but an appointive official. To order the recall of an officer elected in the state at large, or appointed by an officer who was so elected, a petition signed by 10 per cent. of those who voted for the officer in question or for the officer who appointed him is required. To order a

special election for the recall of an officer elected or appointed in a district within the state, but larger than a county, a petition of 15 per cent. of the voters concerned is required; and in the case of recall elections in a single county or division of a county, a 25 per cent. petition is required. This Kansas plan was intended to recognize the principle that a public officer is responsible primarily to those whose confidence he presumably possessed at the outset of his term, and that proceedings for his removal from office are not to originate in the partisan schemes of his political opponents, but only in the course of duty by political friends. Certainly such a plan is calculated to increase the effectiveness of government by party, for it will increase the effective responsibility of the chief appointing officers and thus prepare the way for a greater concentration of power in the hands of such officers, especially of the governor, without undue risk of making him a boss. The plan is one more instance of the recent tendency to a deliberate legal recognition of the public function of the political party.

Recall of Appointive Officers.—The most significant event of the year in connection with the spread of the recall was the adoption by the legislatures of Kansas and Minnesota of proposals to include within the scope of the recall all appointive as well as elective officers. The leading features of the various recall measures adopted in different states have already been discussed in the YEAR BOOK (1912, pp. 65-6). In behalf of the extension of the recall to cover appointive officers, it is argued that many of the state offices which are filled by appointment possess political powers of as much importance as those of many offices now filled by election. Thus in states in which the state surveyor or printer is elected whilst the commissioners of corporations or of agriculture are appointed, it is hard to discern the reason for the distinction. It has become generally recognized that the power of the people over their state officials is not increased by increasing further the number of offices appearing on the ballot, and yet in most states there has been much reluctance to try the experiment of seeking an increase of popular control by shortening the ballot and thereby adding to the number of appointive officials (see *The Short Ballot, infra*). Moreover the wider adoption of the recall itself has been impeded by the feeling that logically it ought to be applied to all elective offices, but that practically some of the elective offices, such as particularly in many states the judicial offices, already suffer from too much popular, or at any rate partisan, control (see "Non-Partisan Judicial Nominations," *supra*). Obviously there is an opportunity to attack two evils at once. The power of the people may be strengthened by applying the recall to all offices without distinction on account of the method by which they are filled, and the burden of the ballot may be lightened by removing therefrom all offices which either do not or ought not to possess political influence, such as state surveyors and printers, and also all offices which ought to be protected against the ordinary political influences without being placed altogether beyond the control of the people, such as the judges.

Recall of Judicial Decisions—No state has followed the lead of Colorado (*A. Y. B.*, 1912, p. 67) and adopted the mis-named recall of judicial decisions. The Ohio constitutional convention, before which the doctrine of the recall of judicial decisions was first expounded, recognized the evil which that proposal was devised to meet, and whilst rejecting the proposal, submitted to the people another plan for mitigating the evils of excessive and arbitrary legislation by judges under the guise of constitutional interpretation. The Ohio plan, adopted by the people in September, 1912, provides that no act of the legislature, duly approved by the executive, and not vetoed by the people through the use of the referendum, shall be vetoed by the Supreme Court unless at least six of the seven judges concur in the decision. This plan will prevent the judicial nullification of legislation by a bare majority of the judges of the state Supreme Court, but it will not of course prevent the nullification of state legislation by a bare majority of the Supreme Court of the United States in

cases involving rights protected by both state and Federal constitutions and threatened with impairment by legislation of the state. In 1913 the legislature of Minnesota provided for the submission to the people in 1914 of a constitutional amendment forbidding the judicial veto of legislation in that state by less than five out of seven judges of the state Supreme Court. The theory of these measures seems to be that there is a presumption in favor of the constitutionality of acts of a legislature representing the sovereign people, which ought not to be overthrown by a bare majority of a court, representing a merely coordinate branch of government, whose functions are not primarily legislative.

Bibliography of the Initiative, Referendum, and Recall.—*Equity* (Philadelphia) for January, 1913, contains a history of the movement for direct legislation in the United States, an analysis of all existing constitutional provisions for the initiative and referendum, and a table of popular votes upon all measures submitted to the people. *The Initiative and Referendum*, published by the National Economic League, Boston, contains an excellent statement of the arguments for and against direct legislation by the people. Reference should be had also to A. L. Lowell, *Public Opinion and Popular Government* (Longmans); F. A. Cleveland, *Organized Democracy* (Longmans); D. F. Wilcox, *Government by All the People* (Macmillan); F. N. Judson, *The Judiciary and the People* (Yale University Press); and Elihu Root, *Experiments in Government and the Essentials of the Constitution* (Princeton University Press).

THE SHORT BALLOT

The short ballot, so-called (*A. Y. B.*, 1910, p. 156; 1911, p. 187; 1912, p. 67), made more progress in 1913, so far at least as it relates to the state governments, than ever before. The progress of the short ballot in municipal elections is reviewed elsewhere (see VII, *Municipal Government*). In Iowa the legislature provided that the names of candidates for the positions of Supreme Court clerk and reporter should no longer appear on the ballot, but that the judges of the Supreme Court should fill those positions by appointments for terms of four years. In Ohio the clerk of the Supreme Court was also made appointive by the judges of the court, and the state Food and Dairy Commissioner was made appointive by the Governor. The Ohio legislature also submitted a constitutional amendment to the people, empowering the Governor to appoint the Attorney-General, the Secretary of State, state Auditor, and state Treasurer, all of whom are now elected by the people of the state at large. The same measure further provides that county officers need not necessarily be elected, as heretofore, but that the legislature shall have power to deal with the organization of counties as it shall see fit. This is the most important step in the direction of a short ballot that has been taken in any state since the foundation of the short ballot movement four years ago. Another significant development of the year in connection with the progress of the short ballot is its constant appearance in plans for the radical reorganization of state governments, a topic of ever-widening interest (see *Reorganization of State Government, infra*).

Equity for January, 1913, contains a clear and concise description of the meaning of the short ballot idea and the progress of the movement to date. See also the *Short Ballot Bulletin*, published by the National Short Ballot Organization, New York.

THE REORGANIZATION OF STATE GOVERNMENT

Alternative Plans for Reform.—The year 1913 witnessed the rapid growth of a popular feeling that the time has come for a reëxamination of the forms of state government and a reconsideration of the principles upon which the existing state governments have been constructed. This feeling springs from three separate and distinct sources. First, there are those

who are inspired largely by the rapid spread of the commission form of government for cities (see VII, *Municipal Government, infra*). The advocates of the establishment of the commission form of government in the states argue that it has proved a great success in cities and that therefore it should prove a corresponding success in the states. The second source of inspiration for those who would reform the governments of the states is found in the example of Oregon, the state which led the way in 1902 in the adoption of the direct constitutional initiative, and which followed up its original lead by working out the first thoroughgoing plans for the radical reconstruction of the whole frame of state government. The point of departure for this group of reformers lies in the plans for the reorganization of the government of Oregon submitted to the voters in 1910 and 1912 by the so-called People's Power League (*A. Y. B.*, 1910, pp. 153-5; 1912, pp. 67-70). Third, there are the conservative reformers, who distrust the radical commission form and Oregon plans, but who recognize the need for improving the forms of state government and believe the only way to defeat radical reform is to furnish an alternative plan, which shall hold forth the promise of better things without threatening the fundamental features of representative government in America.

State Government by Commission.—The advocates of the commission plan for the government of the states propose a radical reorganization of state governments along the lines marked out by the movement for city government by commission. In general, however, their inclination is not to follow too blindly in the wake of the commission-governed cities. Thus one proposal is, that a single commission be substituted for the state Governor and legislature; that this commission be a larger body than the typical municipal commission, but much smaller than the present state legislatures; that it be elected by the voters of the state at large, subject to some scheme of proportional representation affording each considerable fraction of the people an opportunity to secure a representative of their own; and that the body so elected be in continuous session, the commissioners devoting all their time to the service of the state. This proposal further provides that the commission shall exercise all powers of legislation and administration, including that of appointing to and removing from office, thus completely abandoning the traditional American doctrine of the division of powers. The advocates of the commission plan for states, like the radical reformers generally, let it be distinctly understood that they believe the initiative, referendum, and recall (including the recall of appointive as well as elective officers) to be absolutely essential parts of any successful system of popular government (see *Equity*, July, 1913, pp. 155-61). The movement to extend the commission plan to states made its first official appearance in Kansas, where Governor Hodge sent a special message to the legislature of 1913, urging the adoption of the commission plan in that state. Governor Hodge did not go so far as to propose a complete amalgamation of the legislative and executive branches of government in a single small body to be elected in the state at large. His proposal was, to leave the executive as it was, but to substitute for the bi-cameral legislature a smaller body, consisting of one house only, the members of which should be elected by congressional districts. This proposal failed of adoption in Kansas, and proposals to establish the commission form of government in other states have not yet reached the stage of commanding official support. (See also VII, *Municipal Government.*)

The Oregon Plan.—The Oregon reformers, whose plan has been outlined at length in previous issues of the YEAR BOOK (1910, pp.153-5; 1912, pp. 67-70), would abolish the Governor's veto power, and substitute the power to fix the maximum of all items in the state budget; they would abolish the direct primary, and substitute systems of preferential voting for the election of the Governor and of proportional representation for the election of other members of the legislature; they would abolish the popular election of all administrative officers, and substitute the appointment of ad-

ministrative officers by the Governor, subject to recall by the people; they would abolish the political isolation of the Governor and substitute an arrangement by which the Governor and the members of his Cabinet would have seats and a voice in the legislature, the whole body being subject to the popular initiative and referendum: in short, they would establish the parliamentary or Cabinet system of government, subject to the sovereignty of the people. The Oregon plan would vest much greater political authority in the hands of the Governor than is the case under any existing state constitution, and would secure the necessary separation between politics proper and administration by entrusting the actual management of state business to a state business manager or other administrative officers independent of ordinary political influences. Thus the executive organization would bear a certain resemblance to that provided under the so-called Sumter plan of city government (*A. Y. B.*, 1912, p. 193), which was adopted in 1913 in Dayton, Ohio (see VII, *Municipal Government*). Schemes modeled more or less after the Oregon plan were discussed in various state legislatures in 1913, the discussion going farther perhaps in Colorado than elsewhere, but not leading anywhere to action. (For a further exposition of the Oregon plan, see letter of W. S. U'Ren, *Equity*, July, 1913, pp. 164-5.)

The Conservative Plan.—The conservative reformers, like the radical reformers of both groups, denounce the irresponsibility and inefficiency of modern legislatures and legislative methods. They find the remedy, however, for such legislative evils, not in increasing the duties of the electorate by the introduction of direct legislation and the recall, but in stimulating the initiative and strengthening the responsibility of the executive. The proposals which they offer for the relief of these conditions are founded mainly on the proposition that more effective means should be provided for executive leadership and coöperation between executive and legislature. These proposals were formulated as follows by Henry L. Stimson, former Secretary of War, in an address before the Law Academy of Philadelphia on May 27, 1913; the words "Governor" and "legislature" are substituted where he has used the words "President" and "Congress":

> First, as to fiscal legislation: (1) The Governor should be given the right, by statute, to prepare and introduce into the legislature a budget setting forth an estimate of the expenses of the government for the coming year, as well as a proposal of the necessary new legislation, if any, which he suggests as proper to raise revenue for the purpose. (2) His Cabinet officers should be given, by joint resolution or statute, the right to present and defend on the floor of the Senate and House of Representatives the respective portions of his budget pertaining to their departments. (3) By statute or joint resolution, both houses should be forbidden from adding items to the executive budget as thus presented, unless with the Governor's concurrence. Or, in the alternative, the Governor should be given the right to veto individual items in the appropriation bill. Secondly, as to general legislation: (1) The Governor should be given the right to introduce bills, and these bills must be given preference above all other bills, except appropriation bills, on the calendars of both houses and amendments to them be allowed only upon the floor of either house. (2) The members of the Governor's Cabinet should be given, by statute or joint resolution, the right to appear on the floor and discuss these and other bills of general legislation so far as they affect their respective departments.

This plan of reform resembles the plans of the radical reformers in one important respect. It assumes the adoption of the proposals for reducing the number of elective officers, comprehended in the programme for the short ballot. It differs from the radical plans in another important respect: it requires no constitutional amendments in order to be put into effect. It locates the chief defects of the state governments, not in the constitutional *frame* of government, but in the *system* which has come to prevail in practice as a mode of operating the constitutional machinery. It would not alter the structure, but the procedure of the state governments. The conservative proposals have not yet been made a political issue in any state. In Massachusetts, however, the programme of the Progressive party for the reform of the state government consists substantially of a combination of the conservative programme for the reform of procedure with the radical proposals for the re-

form of the structure of state government to the extent of the adoption of the initiative, referendum, recall, and short ballot.

Calls for State Constitutional Conventions.—In some states the reformers prefer to introduce their proposals by the use of the constitutional initiative, or, where the constitutional initiative does not exist, to work for the introduction of that reform first. In others the demands for constitutional reform have crystallized in the shape of a demand for a constitutional convention. In 1913 the legislatures of three states made provision for taking a popular vote in 1914 upon the question of calling conventions to reform the constitution, namely, Indiana, New York, and South Dakota. In these states the conventions, if ordered by the people, will be held in 1915. The reason for calling a constitutional convention in Indiana is peculiar. The existing constitution of that state makes no provision for calling a convention, and the provision made for amendment is so cumbersome as to be practically unworkable. The provision is that a proposed constitutional amendment must be adopted by two successive legislatures and then by the people by a clear majority of all votes cast at the election at which the measure is submitted to them. Only one measure may be proposed and adopted at a time, and the courts have decided that a measure, once proposed for submission to the people, remains pending until approved or rejected by a clear majority of all votes cast at an election. Now a comparatively unimportant amendment, authorizing the legislature to prescribe the qualifications for admission to the bar, was proposed for the first time by the legislature in 1897 and submitted to the people in 1900, 1906 and 1910, but each time there was no majority of votes either for or against it. The result of the failure of the people to become interested in the regulation of the terms of admission to the bar has been to prevent any constitutional changes whatever for the last sixteen years. In 1911 the legislature attempted to meet the emergency by drafting an entirely new constitution to be submitted to the people, not as an amendment to the existing constitution, but as a substitute for it. This move was frustrated by the courts, and a call for a constitutional convention, though not expressly authorized by the existing constitution, remained the only practicable means of disposing of the pending amendment and opening the way for further changes. In South Dakota the legislative confusion resulting from the proposal of various radical and more or less conflicting schemes for the reform of the state government could be settled only by the submission to the people of a call for a constitutional convention. At the same time the legislature provided for the submission of an amendment to extend the terms of all members of the legislature to four years, one-half of each house to retire biennially. In New York the bill providing for the submission of the question in 1914 was one item of the remarkable programme of legislation passed in December (see I, *American History*). Besides the three states which provided for the submission to the people of the question of calling a constitutional convention, there are several others in which there is an insistent demand for such a convention. In both Massachusetts and New Jersey, the two states in which important campaigns took place in 1913, at least one of the chief parties included a demand for a convention in the state platform, and in several other states, notably Illinois and Pennsylvania, the issue is being brought to the front.

III. INTERNATIONAL RELATIONS

CHARLES EDWARD ASNIS

INTERNATIONAL RELATIONS OF THE UNITED STATES

GREAT BRITAIN

The Panama Canal Tolls Controversy.—While the Panama Canal Act of Aug. 24, 1912, was pending in Congress, Great Britain, in July, made an informal protest against the clause exempting American coastwise shipping from payment of tolls (*A. Y. B.*, 1912, p. 83). The position of Great Britain was set forth at length in a formal statement by Sir Edward Grey, the Foreign Secretary, dated Nov. 14, but not presented to the Department of State until Dec. 9, 1912. The United States had already committed itself in its interpretation of the Hay-Pauncefote Treaty by the Panama Canal Act itself, by the memorandum of President Taft accompanying the Act at the time of its signature, and by President Taft's proclamation fixing the tolls on vessels navigating the Canal. At the time of Sir Edward Grey's note, the controversy was in its early stages and hinged on the interpretation of the Hay-Pauncefote Treaty. Article III of the treaty was interpreted by President Taft as stipulating no discrimination against foreign vessels only, and as leaving it open to the United States to grant any privilege she likes to her own vessels, the phrase "all nations" being interpreted to mean "all other nations" or "all foreign nations." (*A. Y. B.*, 1912, p. 83.)

Sir Edward Grey's Note.—The British Foreign Secretary, in his note, continued the controversy along the lines laid down by President Taft, and set forth in full the British interpretation of the Hay-Pauncefote Treaty. He emphasized the doctrine of equality and his argument revolved around two main points: first, the intention of the Hay-Pauncefote Treaty in the light of the Clayton-Bulwer Treaty; and second, the discrimination against British shipping in allowing American coasting vessels to pass free through the Canal, the effect of which would be to shift the burden of the upkeep of the Canal to British and foreign shipping.

The methods of interpretation were different. Sir Edward Grey used the historical method, referring to instruments and events preceding the Hay-Pauncefote Treaty to show the intention thereof; whereas President Taft confined himself to the actual wording of the treaty, and, in interpreting phrases did not appear to go beyond the four corners of the treaty; or, in going beyond the treaty referred to subsequent events, such as American ownership of the Canal. "The Hay-Pauncefote Treaty does not stand alone," said Sir Edward Grey; "it was the corollary of the Clayton-Bulwer Treaty of 1850." The two methods of interpretation were brought in sharp contrast in construing the important provision that "the Canal shall be free and open to vessels of commerce and of war of all nations." Sir Edward Grey construed it in the terms of the Clayton-Bulwer Treaty, particularly Article 8, which provided for equal treatment for both American and British ships, and he submitted that the principle of equality of treatment was guaranteed by the United States in consideration of the right to construct the canal independently and under its own auspices.

The intention of the Hay-Pauncefote Treaty was that the United States was to recover the right to construct the trans-Isthmian Canal upon the terms that the waterway was to be open to British and United States ships on equal terms. (*Am. Jour. of Int. Law, VII,* 48.)

President Taft, on the other hand, construed the disputed clause in the light of the provisions of the treaty itself, with particular reference to the provisions immediately preceding. The phrase "free and open to the vessels . . . of all nations" was but the first of several conditions stated by the United States in the declaration immediately preceding it, and these conditions were adopted for a specific purpose expressly stated in the treaty, namely, as a basis of the neutralization of the Canal, and for no other purpose. The conditions enumerated in the treaty of which the disputed clause is the first, are merely a basis of the neutrality which the United States was willing should be characteristic of the Canal, and were not intended to limit or hamper the United States in the exercise of her sovereign power in dealing with her own commerce or in using her own Canal in whatsoever manner she saw fit. The disputed clause, therefore, was interpreted as being a conditional favored nation clause.

With this difference of interpretation as to the treaty itself, it is natural that the two governments would differ as to the test or measure of discrimination. The American test is not the treatment that the United States gives to its own nationals but the treatment it extends to other nations. The British test is whether or not British ships would be compelled to bear more than their proportionate share of the cost of maintenance of the Canal. To show that this is the proper test of discrimination, Sir Edward Grey quoted Article III of the Hay-Pauncefote Treaty: "Such conditions and charges of traffic shall be just and equitable." "The purpose of these words," he continued, "was to limit the tolls to the amount representing the fair value of the services rendered, i. e., to the interest on the capital expended and the cost of the operation and maintenance of the Canal." If charges of traffic are to be "just and equitable," the exemption of American vessels, coasting or otherwise, from the payment of tolls, would shift on foreign vessels using the Canal, more than their "just and equitable" share in the cost of maintenance.

Secretary Knox's Rejoinder.—The note of Secretary Knox in reply to Sir Edward Grey, dated Jan. 17, gave a new turn to the controversy. He turned from interpretation and theoretical grievances to facts and actual injury. The main contribution of Secretary Knox to the controversy was the proposition that "suppositious injustice and inequality" should give way to an inquiry into proved facts; that conjecture and hypothesis must yield to an investigation of actual damage. By thus shifting the controversy, Secretary Knox hoped to clear the air and narrow down the dispute to the consideration of actual injury to British or foreign shipping. He evidently believed that an investigation into the facts would convince Great Britain that there has been no actual discrimination, and that arbitration in advance of such an investigation would be premature. He charged Great Britain with raising an issue of the interpretation of the Hay-Pauncefote Treaty "in relation to questions of fact, which have not yet arisen, but may possibly arise in the future."

Moreover, the gravamen of the complaint is not that the Canal Act will actually injure in its operation British shipping or destroy rights claimed for such shipping under the Hay-Pauncefote Treaty, but that such injury or destruction may possibly be the effect thereof: and further, and more particularly, Sir Edward Grey complains that the action of Congress in enacting the legislation under discussion foreshadows that Congress or the President may hereafter take some action which might be injurious to British shipping and destructive of its rights under the treaty. . . . Concerning this possible future injury, it is only necessary to say that, in the absence of an allegation of actual or certainly impending injury, there appears nothing on which to base a sound complaint. . . . Until these objections rest upon something more substantial than mere possibility it is not believed that they should be submitted to arbitration. (*Am. Jour. of Int. Law, VII,* 209.)

The argument of Secretary Knox was more than a plea in abatement; it was an invitation to consider carefully all the circumstances under

which tolls were fixed, and the mathematical basis upon which they were computed. He suggested the possibility that such an examination would not only show that British and foreign shipping had not been discriminated against but that they would be actually aided by the United States. The actual operation of the Canal might prove that the tolls fixed are really less than the actual cost of operation and maintenance. If this is the case, then British and foreign shipping will have no sound cause for complaint.

> In the same way the United States will be its losers if the tolls fixed by the President's proclamation on all vessels represent less than the fair value of the service rendered, which must necessarily be the case for many years; and the United States will, therefore, be in a position of subsidizing or aiding not merely its own coastwise vessels but foreign vessels as well. (*Ibid.*)

At any rate, the discussion required an examination into the facts and

> if it should be found as a result of such an examination on the part of Great Britain that a difference of opinion exists between the two governments or any of the important questions of fact involved in this discussion, then a situation will have arisen, which, in the opinion of this Government could with advantage be dealt with by referring the controversy to a commission of inquiry for examination and report, in the manner provided for in the unratified arbitration treaty of Aug. 3, 1911, between the United States and Great Britain. (*Ibid.*)

Ambassador Bryce's Observations.—On Feb. 27, Great Britain replied to Secretary Knox. The reply did not come from Sir Edward Grey in the form of a note; it came from the then British Ambassador James Bryce, in a form that he was pleased to call "observations." The British Ambassador objected to the argument of the hypothetical case and observed that there was a sufficient grievance on the part of the British Government without waiting for an actual concrete case to arise. The exemption of American coastwise shipping in the Act of Congress, discriminating between American and foreign vessels, was in itself and apart from any action which may be taken under it, inconsistent with the provisions of the Hay-Pauncefote Treaty for equality of treatment between the vessels of all nations; and

> the mere conferring by Congress of power to fix lower tolls on United States ships than on British ships amounts to a denial of the right of British shipping to equality of treatment, and is, therefore, inconsistent with the treaty irrespective of the particular way in which such power has been so far actually exercised. (*Ibid.*, p. 100.)

Mr. Bryce pressed for arbitration, observing that the controversy at its present stage is now a proper one for reference to the Hague Tribunal.

> His Majesty's Government thinks it more in accordance with the general arbitration treaty that the settlement desired should precede rather than follow the doing of any acts which could raise questions of actual damage suffered. (*Ibid.*)

Secretary Knox acknowledged receipt of Ambassador Bryce's reply, and left the entire controversy to the Wilson Administration for consideration and adjustment.

American and British Pecuniary Claims Arbitration.—Under an agreement of Aug. 18, 1910, between the United States and Great Britain provision is made for arbitration of pecuniary claims of private persons of each country. The claims, which aggregate many millions of dollars, have remained without judicial determination for more than 50 years. The arbitral tribunal was organized under the provisions of The Hague Convention of 1907, and held sessions at Washington from May 13 to May 17. It then adjourned to Ottawa, where it met on June 9, for the determination of claims of Canadian origin, and remained in session until June 18. It then adjourned to meet in Washington on March 9, 1914. The plan of the tribunal is to hold sessions at Washington for the consideration of cases requiring consultation of the American government records, and at Ottawa, of cases requiring Canadian records. The tribunal consists of Chandler P. Anderson, ex-Counsellor to the Department of State, arbitrator for the United States; Sir Charles Fitzpatrick, Chief Justice of Canada, arbitrator for Great Britain; and M. Henri Fromageot of France, umpire.

JAPAN

The California Alien Land Law.—The adoption by California of a law restricting alien occupation of land

has involved the United States in a controversy with Japan (see I, *American History*). In effect, the law places restrictions on the leasing and ownership of agricultural lands by aliens ineligible to citizenship. It is precisely the words "ineligible to citizenship" that carried offense to the Japanese Government, which filed a formal protest against the law in May. Contrary to the request and solicitation of the President and of the Secretary of State, the California legislature insisted on retaining the offensive phraseology. The bill was so drawn as to minimize all legal objections. The law as enacted purports to give Japanese subjects all the rights guaranteed them by treaty, and in addition grants a right to lease agricultural lands for a term of three years. The obvious purpose was to disarm legal argument by the specific insertion of a right hitherto not vouchsafed by treaty. The effect of the law, however, is the exclusion of Japanese from a privilege previously accorded them and now accorded to other aliens. The Japanese Government resented the obvious discrimination to which its nationals were subjected, and protested that the California law imputed inferiority to its subjects and constituted an affront to Japanese national pride. Fundamentally, the question, though not expressly raised, is one of naturalization, and the position of the Japanese Government is interpreted as but a preliminary to a formal demand that its nationals shall be made eligible to citizenship.

Although frequent interviews have taken place between Viscount Chinda, the Japanese Ambassador, and Secretary Bryan, it appears that the two governments have not yet arrived at a solution of the difficulty. Although assured of fair and impartial treatment in the courts of the United States, where the question of violation of treaty rights could be determined, it is stated that the Japanese Government has declined to test the matter legally, considering the situation as one in which a principle involving national honor is at stake. The Japanese Government desires at least an abstract acknowledgment of equality.

CHINA

The Six-Power Loan.—The progress of the loan negotiations of the Chinese Government with the Six-Power Group (*A. Y. B.*, 1912, p. 94-96), led President Wilson to announce his policy with regard to China and the loan, during the first month of his administration (see "China," *infra;* and IV, *China*). Fearing the eventuality of forcible interference by the Consortium in the domestic affairs of China, he declined to be party to an agreement the enforcement of which might entail drastic measures, and requested the American group of financiers to withdraw from the Six-Power group. His attitude is summarized in the following extract from his statement of March 18:

> The conditions of the loan seem to us to touch very nearly the administrative independence of China itself, and this Administration does not feel that it ought, even by implication, to be a party to these conditions. The responsibility on its part, which would be implied in requesting the bankers to undertake the loan, might conceivably go the length in some unhappy contingency of forcible interference in the financial and even the political affairs of that great Oriental state, just now awakening to a consciousness of its power and of its obligations to its people.
>
> The conditions include not only the pledging of particular taxes, some of them antiquated and burdensome, to secure the loan, but also the administration of those taxes by foreign agents. The responsibility on the part of our Government implied in the encouragement of a loan thus secured and administered is plain enough and is obnoxious to the principles upon which our Government rests.

On March 20, the representative of the American group of bankers informed the bankers of the Consortium of the dissolution of his own syndicate, which involved its retirement from the Consortium.

By withdrawing from the Six-Power Group, it is believed that President Wilson placed the United States in a strong tactical position. In the event of contemplated forcible measures by the loan group on the ground of violation by China of the conditions of the loan, the United States would be a greater restraining force as a neutral than as a participant. In such event, the United States would be in a better position to act if in its opinion the integrity of China re-

quired protection. It is also thought that in retiring from the Chinese loan group the United States is placed in a position to deal with Latin-American problems free from the criticism of Europe because of American participation in Asiatic affairs.

Recognition.—The statement of President Wilson on March 18 (*supra*) expressed sympathy for the new Republic and foreshadowed its recognition by the United States. The Chinese Republic was officially recognized on May 2, on the completion of the organization of the National Assembly. (See also IV, *China.*)

BRAZIL

United States and Preferential Duty.—In May, Brazil restored preferential rates on imports from the United States. Brazil had suspended these preferential concessions because the United States Government instituted suit against the so-called Coffee Trust, and attacked the coffee valorization project of Brazil, involving about 900,000 bags of coffee stored in New York (*A. Y. B.*, 1912, pp. 86, 327). The concessions are preferentials on flour of 30 per cent. and on other articles, such as cement and furniture, of 20 per cent. In December, the State Department received word that the annual budget of Brazil contained the same provision for the preferential treatment of American imports as prevailed during the current year.

Japanese Colonization.—Brazil is about to try Asiatic colonization on a large scale. In June, the government granted concessions to a Japanese syndicate called the Colonization Company of Brazil (Brazil Takushoku Kaisha) whereby the syndicate is given authority to found colonies of Japanese in the states of Sao Paolo, Rio de Janeiro and Minas Garaes. The privilege is given the colonization company to build a sea port to the south of Iguape which may be inhabited by Japanese only. The port will be known as "Rodriguez Alves." The syndicate undertakes to settle 10,000 Japanese families within five years from the date of the grant. The colonists will engage in silk-worm breeding and in the growing of rice and fruits. They are not to be hindered in retention of their language and customs, and are to form a nation within a nation. (*Independent*, Aug. 21, 1913.)

CUBA

The Amnesty Bill.—Early in the year the United States was obliged to protest against an Amnesty bill passed by the Cuban legislature. As originally drafted the bill was intended to free the colored insurrectionists who started an uprising in the eastern end of the island in 1912 (*A. Y. B.*, 1912, p. 77), and other offenders of similar character. Secretary Knox was informed to this effect upon inquiry. The bill, however, was later amended to empower Senor Gomez, the retiring President, to grant pardon before trial to persons within and without the Government service whom President-elect Menocal intended to prosecute for wholesale grafting and corruption in connection with Cuban financial administration. The amendment was so timed as to be ready for adoption just as the American administration was changing hands. On the day that Secretary Bryan took the oath of office, however, he forwarded a strong note to President Gomez urging him to veto the bill. The objection of the United States was based under the authority of the Platt Amendment to the Cuban constitution, which, *inter alia*, gave the United States supervision of Cuba's national finances. As President-elect Menocal had charged that the Cuban Treasury had been looted, the United States was primarily concerned. The situation grew serious when it was reported that President Gomez had signed the bill on March 7 despite the American protest. He yielded eventually, however, and on March 9 he vetoed the bill.

COLOMBIA

The Panama Canal Controversy.—The controversy between the United States and Colombia over circumstances attending the acquisition of the Panama Canal still remains unsettled. The Taft Administration was anxious to arrive at an understanding with Colombia and a special mission by

the Department of State was entrusted to James T. Du Boise, the American Minister at Bogota. On Feb. 15 he had a formal conference with Senor Urrutia, the Colombian Minister of Foreign Affairs, and submitted a series of proposals on behalf of the United States designed to end the controversy. They were as follows:

1. The execution of tripartite treaties with Colombia, the United States, and the Panama Republic as parties, in which the latter would be recognized.
2. The payment of $10,000,000 to Colombia for an option to construct an interoceanic canal by way of the Artato and for the privilege of establishing coaling stations on the islands of San Andres and Providencia.
3. The good offices of the United States in settling all questions pending between Colombia and the Panama Republic.
4. The submission to arbitration of the claim of Colombia to the reversionary rights over the Panama Railroad.
5. Concessions to Colombia of extraordinary preferential rights in the Panama Canal.

The United States withheld from Panama the annual rent payment of $250,000 on account of the Canal, although several months overdue, in the hope that a settlement with Colombia might be reached. The proposals, however, were rejected by Colombia who insisted on the submission of all disputed matters to arbitration before the Hague Tribunal. In March, Secretary Knox reported to the Senate that the rejection of the proposals by Colombia closed the door to further overtures on the part of the United States. The prospect of a settlement during the term of the present Administration seems bright. In his message to the Colombian Congress of 1913, President Restrepo referred to the appointment of Thaddeus A. Thompson, as United States Minister at Bogota as a hopeful augury in view of the conciliatory attitude of President Wilson's Government. He added:

> The probability that the service of the Isthmian Canal will soon be available, the advantage of cultivating frankly cordial relations with the United States, the clear and progressive development of our nationality, and the peculiar needs of our maritime departments, are making every day more close our *rapprochement* with the great Republic of the North. (*Times*, London, Sept. 30, 1913.)

In the *memoria* presented to Congress, Senor Urrutia, the Foreign Minister, says that the Colombian Government is in expectation of receiving fresh proposals, and that it is convinced of the necessity of a prompt, amicable, and decorous solution of the questions pending between Colombia and the United States.

LATIN-AMERICAN POLICY

The President's Declarations.—The policy of the administration toward Central and South America, generally, was announced by President Wilson in a statement issued on March 11 of the principles that would govern his administration with respect to the countries of Latin America. His position is summarized in the following extract:

> One of the chief objects of my administration will be to cultivate the friendships and deserve the confidence of our sister republics of Central and South America, and to promote in every proper and honorable way the interests which are common to the peoples of the two continents. . . . We can have no sympathy with those who seek to seize the power of government to advance their own personal interests or ambition. . . . The United States has nothing to seek in Central and South America except the lasting interests of the peoples of the two continents, the security of governments intended for the people and for no special group or interest, and the development of personal and trade relationships between the two continents which shall redound to the profit and advantage of both, and interfere with the rights and liberties of neither. . . .

Perhaps the most significant expression of President Wilson with reference to the Latin-American policy is contained in his speech before the Southern Commercial Congress at Mobile on Oct. 27. In order to remove all doubts entertained by the Latin-American Republics that the United States eventually contemplated an extension of territory at their expense, President Wilson said:

> I want to take this occasion to say that the United States will never again seek one additional foot of territory by conquest.

The policy thus announced by the President has been said to be the Monroe Doctrine interpreted in the language of the day, with particular reference to conditions that now obtain in the Latin-American Republics.

Although the statements of Mr. Wilson's declaration of March 11 were made with regard to Latin-America

in general, they can be best understood in the light of recent events in Central America, and the same may be said of his speeches at Mobile and at Swarthmore. The great national interests of the United States in the Panama Canal have given rise to the formation of policies with regard to those countries in the region generally known as the zone of the Caribbean. Generally these policies are grouped under the Monroe Doctrine, but they have had a logical development in recent years and may be stated separate and apart from the Monroe Doctrine. They have been brought about by the inevitable changes adumbrated by the Panama Canal. Originally formulated by Republican Administrations, they have been amplified and in some instances extended by the Democratic Administration, indicating that they have grown from party to national policies.

The Zone of the Caribbean.—The tremendous national interest in the Panama Canal makes the safety, the peace and the prosperity of Caribbean countries of paramount importance to the United States. The ownership of the Canal has imposed on the United States political and administrative responsibilities, the foremost being the securing of the Canal itself against extra-American attack and competition. Not only must non-American countries be prevented from attacking or competing with the Canal, but they must be given no cause whatever for complaint or interference in the affairs of the republics in the region of the Canal. This has brought about a localization of the Monroe Doctrine in the zone affected. The negative principles of the doctrine predicated on non-American interference are focused on the republics in the region of the Caribbean, and the positive responsibilities flowing therefrom, such as the guarantee and maintenance of order, are assumed by the United States. And as a corollary the United States has turned to the Caribbean republics themselves, with a view of maintaining their political stability and commercial prosperity. The following are the phases of the great national policy now in the process of making: the doctrine of non-recognition; the policy with regard to foreign concessions; the attempt toward establishing protectorates; the supervision of finances and national debts; the preëmption of all canal routes; the securing of harbors and islands for the protection of the Panama Canal from foreign attack.

The Doctrine of Non-Recognition.—This expedient was rendered necessary by the recurrence of revolutions and of conditions bordering on anarchy in the region where American interests are greatest. It was believed that this policy would check all speculation in revolution and civil war, would make it impossible for the provisional government to borrow money abroad, and would serve to put an end to the bewildering succession of dictators. Under the operation of the doctrine, provisional governments will be recognized only when established by constitutional sanction and popular approval.

The doctrine of non-recognition was asserted in two instances during the year; in the case of an attempted revolution in the Dominican Republic and in the case of Mexico. An insurrection was begun in the Dominican Republic in August, and a pitched battle was fought for the control of the inland Government railway. The United States served notice on the leader of the rebels, General Horacio Velasquez, that, in the event of his seizing the Government by force, it would not recognize him; and that by virtue of the convention of 1907 whereby the United States is made collector and custodian of Dominican finances, the share of the Dominican Republics in the customs receipts would be withheld from his provisional government. The insurrection was extinguished and a warning was given to future leaders of insurrections that their efforts would be unavailing and that eventually they would be compelled to retire unrecognized. On a larger scale the doctrine of non-recognition is being tested in Mexico, with results treated in detail on another page (see *Mexico, infra*).

The Policy with Regard to Foreign Concessions.—In his speech before the Southern Commercial Congress in Mobile, the President stated his position with reference to foreign concessions in Latin-America as follows:

You hear of concessions to foreign capitalists in Latin-America. You do not hear of concessions to foreign capitalists in the United States. They are not granted concessions. They are invited to make investments. The work is ours, though they are welcome to invest in it. We do not ask them to supply the capital and do the work. It is an invitation, not a privilege; and states that are obliged because their territory does not lie within the main field of modern enterprise and action, to grant concessions are in this condition, that foreign interests are apt to dominate their domestic affairs—a condition of affairs always dangerous and apt to become intolerable. . . . What these states are going to seek, therefore, is an emancipation from the subordination which has been inevitable to foreign enterprise and an assertion of the splendid character which, in spite of these difficulties, they have again and again been able to demonstrate.

The Pearson concession in Colombia affords a recent illustration of the policy. The Pearson interests wanted the Colombian Congress to ratify a concession to exploit the oil fields in Colombia and carry on all works necessary for the producing and transporting of the oil (see also IV, *Colombia*). Aside from the question of harbors and the Monroe Doctrine, the United States was vitally interested because of the proximity of the Colombian oil fields to the Panama Canal. With the probability of oil as a future naval fuel, the monopoly of the Caribbean oil fields in non-American hands might prove to be a dangerous weapon. The Pearson contract was withdrawn before the Colombian Congress could act on it, the reason stated being the opposition of the United States. The withdrawal has a double significance: it strengthened the policy of the Administration with regard to concessions in Latin-America and cleared the way for a discussion of the Panama controversy with Colombia.

Attempt toward Establishing Protectorates.—The attempt toward the establishment of protectorates is exemplified by a treaty with Nicaragua negotiated by Secretary Bryan in July, which, however, has not been ratified by the Senate. The protectorate features would place Nicaragua in the same relation to the United States as Cuba under the Platt Amendment. The treaty provides that Nicaragua shall declare war only with the consent of the United States; that no treaties shall be made with foreign Governments tending to destroy her independence or give those countries footholds on Nicaraguan soil, and that no public debt shall be contracted beyond Nicaragua's ordinary revenue. It provides also, that the United States may intervene to protect the independence of Nicaragua and to carry out its financial obligations to the extent of supervising the collection of revenues and the disbursement of $3,000,000, which would be paid by this Government for an exclusive canal right-of-way across Nicaragua, with a 99-year lease of a naval base in the Bay of Fonseca, and of the Great Corn and Little Corn Islands in the Caribbean Sea.

Supervision of Finances.—The policy of financial supervision and rehabilitation of the republics in the region of the Panama Canal has become a national policy. The Dominican Republic, Honduras and Nicaragua are illustrations of its operation. The case of Nicaragua affords an interesting study of the policy from a national standpoint. Within a short time a Republican and a Democratic Secretary of State have negotiated treaties with the Republic. The purpose of each is clear—to remove at one stroke the menace of foreign creditors and the menace of revolutionary disorders. The power of the purse as exercised by the United States in the Dominion Republic during the year illustrates the weapon the United States may wield to extinguish insurrections (see "The Doctrine of Non-Recognition," *supra*).

The Preëmption of all Canal Routes.—The ownership of the Panama Canal makes it a matter of paramount importance that the Canal should be safeguarded not only from foreign attack but from competition as well. The preceding as well as the present Administration have committed the United States to this policy. In the proposed treaty with Colombia (see *Colombia, supra*), Secretary Knox sought to secure an option to construct an interoceanic canal over the Atrato route. In the proposed treaty with Nicaragua the Administration seeks to acquire the exclusive right to construct a canal through Nicaraguan territory.

The Protection of the Canal.—This policy is coupled with the attempt to preëmpt all possible canal routes. The proposed treaty with Colombia provides for the privilege of establishing police stations on the islands of San Andres and Providencia. The proposed treaty with Nicaragua stipulates the privilege of a naval and coaling station on the Gulf of Fonseca. The area of the gulf is about 1,000 sq. miles. Its strategic value is important because its shore line includes Honduras, Salvador and Nicaragua and a naval station there would dominate the three republics.

MEXICO

The policy of the Taft Administration in the revolution against President Madero (see IV, *Mexico*) was one of strict neutrality. In reply to a plea for non-intervention, President Taft assured the Mexican President on Feb. 17 that intervention was not contemplated by the United States, and he pointed out the vital importance of the early establishment of peace and order. The Mexican situation, as it existed throughout nearly the whole of the year, was brought about by the seizure of the Government by General Victoriano Huerta on Feb. 18, and the establishment of a provisional government by him. His request for recognition was granted by Great Britain, Germany, France, Spain and Austria-Hungary. The question of recognition by the United States remained for the Wilson Administration to decide. On March 11, in the statement on Latin-American policy already referred to, President Wilson indicated that he would not recognize the provisional government of Huerta in these words: "We can have no sympathy with those who seek to seize the power of government to advance their own personal interests or ambition."

Although couched in general terms, it was generally understood that the statement applied to Huerta's seizure by force of the Mexican Government. In May General Huerta retaliated by declaring that Ambassador Henry L. Wilson was without diplomatic standing in Mexico, and that he would abstain from discussing any official matter with him with the exception of urgent affairs for ordinary procedure. The reason ascribed was that his Government had no personality before the Government of the United States. In the same month, Ambassador Wilson was recalled under circumstances that indicated that the Administration was dissatisfied with his mission, and his resignation soon followed. President Wilson's purpose not to recognize General Huerta became certain when he despatched John Lind, ex-Governor of Minnesota, as his personal representative in Mexico. Mr. Lind was given no official status by such appointment, his ostensible office being that of adviser to the American chargé d'affaires in Mexico City. The object of the President was to avoid the presenting of credentials by Mr. Lind to General Huerta. It was generally understood, however, that although Mr. Lind had no official status, he was armed with instructions and proposals with reference to the situation in Mexico City. His instructions were to "press very earnestly upon those who are now exercising authority or wielding influence" that "the Government of the United States does not feel at liberty any longer to stand inactively by while no real progress is being made toward the establishment of a government in the City of Mexico which the country will obey and respect." Mr. Lind was authorized also to make the following proposals: (1) an immediate cessation of fighting throughout Mexico and a definite armistice solemnly entered into and scrupulously observed; (2) security for an early and free election in which all parties would agree to take part; (3) the consent of General Huerta to bind himself not to be a candidate for President at this election; and (4) the agreement of all parties to abide by the results of the election and to cooperate in the organization and support of the new administration. (*Am. Jour. Int. Law*, VII, 279.)

In Mexico, the opinion was expressed that the action of President Wilson was uncalled for and humiliating. Señor Gamboa, Secretary for Foreign Affairs, replied that it was impossible for Mexico to enter into agreement with all parties contribut-

ing to the disturbed condition of the country, some of whom were unorganized bandits, and that his Government could not guarantee an agreement of all parties to abide by the results of the election. He suggested as a solution of the difficulty that a Mexican Ambassador be received in Washington, and that the United States send a new Ambassador "without previous conditions." He added that the request that General Huerta retire as a candidate could not be entertained and that it could only be decided by Mexican public opinion as expressed at the polls. (*Ibid.*, 284.)

As yet no definite policy toward Mexico had been announced by the United States, the Administration adopting a policy of waiting to see the outcome of the Mexican elections to be held on Oct. 26. Events preceding the election disclosed a purpose of General Huerta to thwart a free and fair election and to establish himself either by an unfair election or as a result of a non-election.

In October, it was freely stated that the European Powers, particularly Great Britain, were about to adopt a policy that would be contrary to that of the United States and that they contemplated concerted action in working out their programme. These statements were given color when Sir Lionel Carden, the British Ambassador-designate to Mexico, presented his credentials to General Huerta, the day after the latter had abolished all pretense of parliamentary government by the arrest of 110 Deputies. The coincidence was unfortunate, as it was subsequently shown that the rumor of projected European independent action was without foundation. The situation, however, was grave enough to bring forth a statement from Senator Bacon, chairman of the Senate Committee on Foreign Relations, that although the United States would not dispute the rights of European Governments to land marines in Mexico in ordinary circumstances, under the present conditions, such action was inadvisable. He said further:

> I consider it far better that a request be made to the United States to land marines when protection is necessary so as to avoid the possibility of the slightest conflict between the United States and the European Powers.

The fear of European action was set at rest when Mr. Asquith, Prime Minister of Great Britain, made the following statement on Nov. 10:

> There have been rumors that after the United States had adopted a line of their own in regard to Mexico we would take a line calculated deliberately to thwart America. There is not a vestige of foundation for such a rumor.

France and Germany also gave the United States assurance that they would suspend formulation of a policy regarding Mexico until the United States had defined its attitude.

The arrest of the Deputies on Oct. 10, convinced President Wilson that Huerta proposed to maintain his government by duress and intimidation. In consequence, President Wilson's attitude became more firm. Huerta was informed that the United States would not recognize the results of the Mexican election; that his action in dissolving the Mexican Congress constituted an act of bad faith toward the United States, and that he could not possibly rehabilitate himself in the good graces of the United States. The President's speeches at Swarthmore and at Mobile indicated that recognition was now out of the question. The President's policy was founded on the proposition that material interests could not take precedence over human rights and national integrity. In his Swarthmore speech he said:

> I would like to believe that all this hemisphere is devoted to the same sacred purpose and that nowhere can any government endure which is stained by blood or supported by anything but the consent of the governed.

In his Mobile speech he expressed the conviction that no consideration of property or of opportunity would compel him to change his attitude.

> We dare not turn from the principle that morality and not expediency is the thing that must guide us and that we will never condone iniquity because it is most convenient to do so.

The Mexican elections on Oct. 26 were inconclusive, as under the Mexican Constitution a sufficient majority of ballots was not obtained. The new Congress of Mexico which was subservient to Huerta, therefore, declared the elections null and void and thereby gave a new lease to Huerta as

the head of the provisional government. Thus far the policy of the Administration was stated in terms of morality. It remained for the President's message of Dec. 2 to announce a policy of action. The President reported that he was hopeful of Huerta's final elimination and that his policy was one of "watchful waiting."

> Little by little he has been completely isolated. By a little every day his power and prestige are crumbling and the collapse is not far away.

The reference to Huerta's expected downfall puts aside the question of United States intervention, or at least, makes such a measure a remote possibility.

In the Mexican situation the new doctrine of non-recognition is being subjected to a most severe test. The doctrine carries with it the corollary that the provisional government marked for non-recognition will also be subjected to the expedient of isolation. The effect of both is a complete boycott, whereby not only will the provisional government find it difficult to borrow money abroad but its supporters will be impressed by the fact that the provisional leader has too heavy a burden to carry and that his elimination is, therefore, a certainty.

EUROPEAN POLICY

Secretary Bryan's Note to the Bucharest Conference.—The policy of disinterestedness in the affairs of Europe has undergone a change in the last decade and the departure from it was emphasized during the Summer when Secretary Bryan communicated with the Balkan States assembled at the Bucharest Conference, requesting them to declare for religious liberty. This was the second specific instance within ten years of the raising of the voice of the United States in European affairs. The policy of the United States in so doing is not only based on the American principle of full enjoyment of civil and religious liberty to all inhabitants but is founded on a grievance growing out of the disproportionate rate of immigration to the United States as a result of the repressive measures and persecutions of certain countries in Europe. These measures seemed to be designed to drive large numbers of inhabitants from the borders of the mother country. As the only asylum offered to the persecuted refugees is the United States, it is being maintained by the Department of State that a right of remonstrance is established in favor of the United States. In 1902, Secretary Hay remonstrated with Rumania because its repressive measures resulted in driving many of her inhabitants to the United States.

Secretary Bryan took as the occasion for communicating the American position, the conference of the Balkan Powers at Bucharest, convened to define the new frontiers in the Balkan Peninsula and to adopt a definitive treaty of peace. The suggestion was made through the usual diplomatic channels that the United States would regard with satisfaction the inclusion in the treaty of a provision securing the full enjoyment of civil and religious liberty to the inhabitants of the territories in question without distinction of creed. As Rumania was about to add to her territory and as the Balkan peoples had just emerged from a war marked by intense racial and religious feelings, Secretary Bryan's note was thought to be properly timed. While Secretary Hay's communication was a remonstrance, Secretary Bryan's was more in the nature of a suggestion.

M. Majorescu, the Rumanian Premier, president of the Bucharest Conference, read Secretary Bryan's note to the delegates and stated that since every country participating in the Conference had laws establishing civil and religious liberty, the insertion of the provision suggested would be superfluous.

INTERNATIONAL RELATIONS IN EUROPE

THE BALKANS

The Balkan Wars.—A detailed narrative of the Balkan struggle is given on another page (see IV, *Foreign Affairs*). This discussion will treat of the various proposals, negotiations and conferences of the belligerents; of the conference of the Ambassadors of the Great Powers; of treaties, pro-

posed and negotiated; of important Balkan problems that pressed for solution, in which not only the Balkan countries but all Europe were vitally concerned; of international relations and controversies; of the grouping of Balkan countries as the wars progressed; of national policies of countries interested or participating in the struggle, with special reference to the Triple Alliance and to the Triple Entente.

The First London Conference.—The conference of the belligerents which began at London on Dec. 16, 1912, was brought about by the mediation of the Great Powers, and followed the cessation hostilities of the first campaign of the first Balkan War (*A. Y. B.*, 1912, p. 92). As on the battlefield the Allies here were a unit against Turkey. Greece alone continued active operations against the common enemy, but she was recognized by Turkey as a party to the negotiations. The first fortnight was spent in diplomatic sparring, marked by proposals and counter-proposals, not seriously made or seriously intended. Turkey especially delayed the deliberations by her refusal to recognize that she was completely vanquished. On Jan. 1, however, the Porte made a proposal which showed at last that it realized its position by offering to cede to the Allies all of Turkey in Europe west of a line to be drawn from Enos on the Aegean Sea to Midia on the Black Sea, Adrianople excepted; agreed to an autonomous Albania to be delimited by the Powers; left the matter of Crete to the Powers for decision, but refused to cede the Aegean Islands. The Allies had previously (Dec. 23, 1912) demanded the cession of all of Turkey in Europe west of a line to be drawn from Rodosto on the Marmora to Cape Malatra on the Black Sea, the peninsula of Gallipoli excepted. The discussion, therefore, narrowed down to these points of difference: the Enos-Midia line as opposed to the Rodosto-Cape Malatra line; the Aegean Islands; and Adrianople.

The Rodosto-Cape Malatra line was urged particularly by Bulgaria, the leading party of the Balkan League. She was fixed in her determination to reach not only the Aegean but the Sea of Marmora as well. Entrenched on the Marmora, she could control Constantinople and the Straits, and she readily yielded the Gallipoli peninsula because she felt that with Rodosto in her possession the peninsula would readily be overrun whenever her plans to proceed to Constantinople were ripe for execution. Strategically, Rodosto carried with it Constantinople and the Straits. This attempt was frowned upon by the Great Powers, whose Ambassadors were holding Conferences in London contemporaneously with those of the belligerents (see "The Conference of Ambassadors," *infra*) and under pressure of the Great Powers Bulgaria eventually gave up her plans of penetration to the Marmora and yielded to the Enos-Midia line.

Adrianople, however, was the real bone of contention, and, as events subsequently proved, the cause of the disruption of the peace conference. The Porte was firm on Adrianople for two reasons: first, its possession was essential to the security of Constantinople, and second, religion and sentiment impelled Islam never to yield its ancient capital to the Allies. To Bulgaria, however, Adrianople was all important. It meant much more than an acquisition of territory. Her position in Thrace was secure without its possession. Having failed to secure a foothold on the Marmora, she was determined upon entrenching herself firmly on the Aegean. Adrianople was particularly important to Bulgaria, because it controlled the railway which connects the Bulgarian railway system with southern Macedonia and the Aegean ports. Bulgaria cherished dreams of a great Aegean seaboard, with Salonika, Kavala and Dedeagatch as her commercial ports, and the railway in question was most essential to Bulgarian penetration through Thrace and Macedonia to the Aegean Sea.

With Bulgaria firm on Adrianople the Ottoman Government gave indications of yielding to the pressure of the Powers, who counselled the cession of the city. A *coup d'etat*, however, organized by Young Turk leaders, overthrew the Ottoman Government of Kiamil Pasha on Jan. 23,

and placed the reigns of the government in the hands of a military party that urged resistance. The policy of the Young Turks was expressed in a proclamation which declared: "We are going to save the national honor or perish in the attempt." The Balkan delegates, impatient at the new turn of affairs and evidently alarmed at the defiant attitude of the new Ministry of the Porte, presented a note to the Turkish delegate, Reshid Pasha, on Jan. 29, saying that they had waited in vain for three weeks for a reply to their demands, that recent events in Constantinople constituted a *fait nouveau*, and that therefore all negotiations were broken off. On Jan. 30, the Allies formally denounced the armistice which had been in force since Dec. 3, 1912. In accordance with its terms, Turkey was given four days' notice that hostilities would be resumed. On the same day, the Young Turks made their first official proposal to the Powers. In reply to the collective note, previously sent to the overthrown Government, the new Ministry suggested the retention under Turkish sovereignty of that part of Adrianople located on the left bank of the Maritza, where the Mussulman mosques and other religious and historic monuments are located. The rest of the city it left to the Powers for ultimate decision, subject to the condition that the islands near the Dardanelles and off the coast of Asia Minor should remain under Turkish sovereignty. The tone of the note was conciliatory and a solution of the problem of Adrianople was in prospect, as Bulgaria desired Adrianople chiefly in order to control the railway. But the Allies had already denounced the armistice and the issue was once more to be decided by the sword.

The Second Campaign.—The second campaign, the events of which are outlined on another page (see IV, *Foreign Affairs*), of the Allies against the Turk was without laurels. It was apparently urged by Bulgaria because of her desire to make herself impregnable in Thrace as in Macedonia, and to entrench herself on the long Aegean seaboard that her ambitious statemen had marked out for her. For Bulgaria, however, the campaign had serious aspects. She set herself the task, not only of reducing Adrianople, but of piercing the lines of Tchataldja, of entrenching herself on the Marmora, and of proceeding eventually to Constantinople to confront Europe with a *fait accompli*. She further hoped to exact a large indemnity from Turkey for the double purpose of repaying herself and of crippling Turkey beyond immediate possibility of rehabilitation. To accomplish all this required mobilization of all her forces in Thrace. Therein, it is generally conceded, Bulgaria committed her great tactical blunder, for, with Scutari and Janina reduced, the Servian, Montenegrin and Greek armies would be without further active duties, and armies thus engaged could be used in "pegging out" frontiers to the disadvantage of that ally occupied in far-away Thrace and encountering the determined resistance of the Turk before the very gates of his capital. Bulgaria, however, confidently mapped out a most arduous military campaign for herself, precisely at the time when her relations with her Allies and with her neighbor Rumania were approaching the breaking point (see "Controversies among the Allies," *infra*).

Early in March the Great Powers informed the Allies that Turkey had requested their mediation to end the struggle and inquired whether mediation was acceptable. The Allies were further informed that they must consult together before making an official reply. The reply of the Allies was substantially similar to their first proposal to Turkey in London, namely, that the line of delimitation of Turkey in Europe should be the Rodosto-Cape Malatra line, excluding the Gallipoli peninsula; that the Aegean Islands must be ceded, and Crete must be renounced; and that, in addition, Turkey must pay an indemnity. The insistence on Rodosto showed plainly Bulgaria's fixed purpose to penetrate to the Marmora, and thereby detract from the defensive value of the Dardanelles. On March 22 the Powers declared themselves willing to mediate and as bases for negotiations, they suggested that the Enos-Midia line be accepted as the Turkish frontier in Europe; that the

autonomy of Albania be recognized; that the Aegean Islands be disposed of by the Powers; and that Crete be abandoned by Turkey. They refused to recognize in principle the question of indemnity, but invited the Allies to participate in the International Financial Commission (see *infra*) in Paris where the matter could be discussed. At the same time a collective note was sent to the Porte suggesting the above as bases for mediation. On April 1, the Porte replied accepting mediation on the bases proposed apparently without reservation. On April 7, the Allies signified their acceptance of mediation but with reservations: the Enos-Midia line was accepted as a basis for negotiation but not as a definite line; the delimitation of Albania was requested to be disclosed; and indemnity must be recognized in principle. To this the Powers replied on April 13, informing the Allies that they were ready to give the northern and northeastern delimitations of Albania, but that indemnity and all other financial questions must be left to the International Financial Commission, where the belligerents would be represented. On April 21 the Allies accepted the mediation of the Powers on the bases outlined, still urging recognition of indemnity in principle and reserving the right to discuss with the Powers questions relating to the Aegean Islands and the frontiers of Thrace and Albania. On May 1 the Powers requested the belligerents to suspend hostilities and to appoint plenipotentiaries. On May 12 the Allies declared themselves ready to cease hostilities, accepted the bases of mediation originally forwarded by the Powers, and indicated London as the meeting place of the peace conference.

The Second London Conference and the Treaty of London.—This conference was unlike the previous one in several respects. The first London conference was deliberative; in it the delegates formulated proposals and counter proposals. The second London conference had little about which to deliberate. It was convened to ratify a treaty already determined upon by the Powers article by article; its stipulations were agreed upon in advance. There was very little for the Balkan envoys to do but to sign and execute the treaty thus prepared. In still another respect, conditions prevailing at the second conference were unlike those at the previous conference. It was manifest that the Allies were no longer a unit. Indications were many that the Balkan League was at an end. Serious questions were brought forward disclosing a lack of unanimity among the Allies. Prominent among these was the matter of frontiers and distribution of conquered territory. Servia was checked at the Adriatic and looked to Bulgaria for compensation elsewhere (see "Controversies among the Allies," *infra*). Greece and Bulgaria both coveted Salonika and neither appeared willing to yield. Servia and Greece were particularly slow in signing the treaty. Their armies were no longer engaged in confronting the Turk, while Bulgaria was confronted at Tchataldja by an enemy which, although willing to sue for peace, was an ever present menace to Bulgaria's frontier in Thrace. In these circumstances, Bulgaria was eager to sign, whereas Servia and Greece were indifferent, evidently planning to keep Bulgaria's attention concentrated on Thrace, while they themselves, in evident coöperation, were extending their frontiers and so maneuvering their armies as to prevent Bulgarian opposition. Their purpose was to present a *fait accompli* to Bulgaria as to the territory in dispute. On May 27, Sir Edward Grey, the spokesman of the Great Powers, informed the Balkan delegates that the Powers would not tolerate further delay in the conclusion of peace. Bulgaria and Turkey readily assented, but Greece and Servia still delayed. Under pressure, however, they at last consented, and on May 30 the Treaty of London was signed. By its terms Turkey relinquished her European territory west of the Enos-Midia line, all of which, with the exception of Albania, she ceded to the Allies. The exact frontier was left to be delimited by an international commission; all questions concerning Albania were left to the Powers; Crete was ceded to the Allies; and the Aegean Islands also were left to the disposition of the Powers to decide. All

financial questions arising out of the war and of redistribution of territory as well as the matter of indemnity were left to an International Financial Commission to meet at Paris in which the belligerents were to be represented. (*Questions Diplomatiques et Coloniales*, XXXV, 747.) This treaty was believed to be conclusive against Turkey, it being generally conceded that the question of spoils among the Allies themselves required separate negotiations, but amicable adjustment of disputes among the Allies was doomed to failure.

Controversies among the Allies.—Two great controversies characterized the relations of the Balkan states. Each was territorial and related to frontier delimitations. National feeling ran so high that a settlement through the ordinary diplomatic channels failed, and each was eventually determined by military action. They grew out of the problem of new frontier lines made necessary by the elimination of the Turk from Macedonia and the greater part of Thrace. Bulgaria, the mutual disputant, was badly worsted in each controversy.

The Rumano-Bulgarian Controversy.—Rumania's grievance dated from the Congress of Berlin. By the mandate of the Powers in 1878, Rumania was deprived of her province, Bessarabia, which was awarded to Russia, her ally in the war with Turkey; in compensation Rumania was given that portion of Bulgarian territory south and east of the Danube and fronting on the Black Sea, known as the Dobrudja, which became her new southern frontier. This frontier, it was contended, was unnatural, unguarded and unstrategic. The Bulgarian city of Silistria is so situated that it commands the frontier of the Dobrudja and is the key to the southern frontier of Rumania. Silistria also commands the railway connecting Bucharest with the Black Sea, which carries with it control of the Rumanian port, Constanza, developed at great cost and sacrifice to Rumania. Rumania's case was therefore that, in addition to being deprived of a fertile province, Europe had forced on her a defenseless frontier, ever menaced by the very country from which her new territory was taken. She was, therefore, placed in unwilling opposition to Bulgaria. Bulgaria, on the other hand, had formulated a policy of *Bulgaria irredenta*, looking to the reclaiming of the Dobrudja. Rumania, therefore, pressed upon Bulgaria demands for a strategic frontier and a declaration by Bulgaria renouncing all claims to the Dobrudja. The projected frontier necessitated the cession of Silistria and some territory to the south of it sufficient to make the new delimitation a natural one, geographically and strategically.

These claims were formulated by Rumania and presented to Bulgaria at the first London conference. Rumania felt that as Bulgaria was about to gain greater Macedonia she would be in a mood to entertain Rumania's claims. Of the diplomatic blunders attributed to Bulgaria, her indifference to Rumania's claims at a time when her neutrality was of supreme importance was probably her greatest. As later events showed, Rumania wielded the balance of power in the Balkans, which, when exerted, could accomplish as it actually did accomplish, the complete humiliation of Bulgaria. It was evidently Bulgaria's desire to postpone consideration of Rumania's claims until after the war with Turkey, whence she expected to emerge as the leading Balkan power. The disputants, however, accepted Russian mediation and a conference was held at St. Petersburg under the presidency of M. Sazonoff. Rumania did not, however, accept the mediation unconditionally, reserving the right to consider herself free to accept or refuse the final recommendation. In May, it was announced that a recommendation was agreed upon, but the text was not to be published, in deference to Bulgaria's wishes, until after the conclusion of the treaty between the Allies and Turkey. Apparently, both disputants were indifferent to the recommendation, Rumania, because she did not acquire a strip of land continuously to the Black Sea, and Bulgaria, because she hoped the cession would be unnecessary if she emerged, as she confidently expected, as the leading power in the Balkans. In point of fact, the claims of Ru-

mania were never recognized by Bulgaria, an error realized too late, when to the invading Serb, Greek and Turk, the Rumanian army was added (see IV, *Foreign Affairs*). Rumania however realized her demands, and obtained her strategic frontier (see "The Treaty of Bucharest," *infra*).

The Bulgaro-Servian Controversy.—This was by far the more serious of the Balkan controversies, and was the leading cause of the war between the Allies or the second Balkan War. While ostensibly confined to the two countries, Servia and Bulgaria, its scope reached beyond the borders of the actual disputants. Primarily the Powers of the Triple Alliance were interested. If the two Slavic countries should have recourse to the sword, then Pan-Slavism would be proven a fable and Russia's work of years undone. Greece and Turkey were interested in keeping the Slav controversy at its highest, the former to strengthen her hold on Salonika and Kavala, the latter to regain Adrianople. The dispute hinged on the interpretation of the ante-bellum treaty of March, 1912, between Servia and Bulgaria, wherein, in anticipation of joint success against Turkey, their respective spheres of influence and division of territory were roughly defined. All the territory north of the Shar range, namely, old Servia and the Sanjak of Novibazar, was to go to Servia. All the territory south and east of the Rhodope range and the Struma River was to go to Bulgaria. This arrangement conceded the vilayets of Salonika and Monastir, including the Vardar Valley, to Bulgaria. The intermediate territory would form an autonomous Macedonia, which was contemplated by both parties to the treaty. Their respective spheres of influence in Macedonia preliminary to partition were thus defined: a line was to be drawn from a point where the Servian Bulgarian and Turkish frontiers converged, a little to the northwest of Kustendil, to Struga, at the northernmost extremity of Lake Ochrida, leaving Kratovo, Veles, Monastir and Ochrida to Bulgaria. The disposal of the districts lying mainly north of this line, namely, the kazas of Kumanovo, Uskub, Dibra, etc., was expressly reserved for arbitration by the Czar of Russia.

In some respects the Balkan Allies exceeded their fondest expectations, particularly in the conquest of all Macedonia, and of the greater part of Thrace. In other respects they were disappointed, particularly Servia when she was barred from access to the Adriatic. As the ulterior purpose of Servia in making the treaty and engaging in the war was to relieve herself of her land-locked position, and reach the sea, and as Bulgaria was about to lay claim to more than 60 per cent. of the conquered territory, Servia felt that she was not to be bound strictly by her ante-bellum engagements. She sought to reinforce her position by pointing to the circumstances of a conquered and not autonomous Macedonia and of a conquered Thrace, circumstances not contemplated by the treaty. If for no other reason than to restore the equilibrium in the Balkans, the treaty should be revised. Servia also reminded Bulgaria of her assistance at Adrianople. Bulgaria, on the other hand, held that the treaty was inviolable and insisted on Servia's adherence to it. The only matter for future disposition was the partition of the neutral zone, and that was left to Russian arbitration. Servia replied that she too would accede to Russian arbitration on condition that all the circumstances of the case be considered under the principle of *rebus sic stantibus*. She insisted that a new and wider basis be laid for Russian arbitration. (*Questions Diplomatiques et Coloniales*, XXXV, 45.)

The crisis was reached early in June, when it was clear that the parties to the treaty would have recourse to arms. Russia, the inspiration and the brain of Pan-Slavism, saw the danger of a conflict between her protégés and in desperation resorted to an expedient so sensational as to furnish one of the most dramatic incidents of contemporary Balkan history. On June 11 the Czar sent personal telegrams to the King of Servia and the King of Bulgaria, appealing to them in the name of the Slav cause to refrain from fratricidal war. He urged them to turn to Russia for guidance in their

present difficulties and warned them that the nation that began hostilities would be held accountable by Russia for the Slav cause. It was the supreme effort of Russia to hold intact the Slav barrier against Teuton advance, constructed after years of patient work by Russian diplomacy. The impression made by the Czar's telegram was most profound, but its effect soon faded. Russia's enemies, Austria-Hungary in particular and the Triple Alliance in general, read in the telegram a confession of the desperate and hopeless condition of Pan Slavism in the Balkans. The opportunity to break through the Slav barrier was too good to be overlooked by Austria-Hungary. She fanned the passions of the Slav disputants so successfully that the Slav barrier was broken in the blood of the Balkan Slavs themselves.

Servia and Bulgaria did not care to flout openly the Czar's mediation; they agreed to arbitration in principle, but a common basis was as remote as ever. Servia and Greece proposed a conference of all the Allies to consider and adjust all disputes between them. While such a conference was unpalatable to Bulgaria because she would be out-voted, a conference was nevertheless planned by Russia to meet at St. Petersburg. Russia's policy evidently was that if she failed to be the arbitrator, she, at least, would preside at the Balkan conference. But before diplomacy could set about its business, hostilities broke out between the former Allies. At first the war was unofficial, Bulgaria and Servia refraining from open declaration in deference to Russia; "It is not war, it is only fighting," said a Balkan diplomat, in commenting on the unofficial war. On July 6, however, Bulgaria recalled her ministers from Servia and Greece, and the war became official and organized. (See also IV, *Foreign Affairs.*)

The Graeco-Servian Entente.—The Balkan controversies represented the territorial differences of the Balkan countries. They were supplemented by the Graeco-Servian grouping, which grew out of the Bulgaro-Servian controversy and signified that Greece and Servia had come to an understanding upon matters economic as well as territorial. It was natural that Servia, isolated from the sea, should put economic before ethnographic considerations, and arrive at an understanding with her Hellenic ally to relieve her land-locked position. Such an understanding meant injury to Bulgaria, her former Slav ally, but it was rendered necessary by Servia's geographical position between Bulgaria and Austria-Hungary. So circumstanced, she was in danger of being hemmed in by a tariff wall, Bulgarian or Austro-Hungarian or both. Moreover, to allow Bulgaria to acquire Monastir and the districts west of the Vardar, was to give Bulgaria the opportunity to cut her off completely from the Aegean. Servia's great fear was that her isolated position would place her in economic vassalage to the countries that hemmed her in. Her national policy was, therefore, predicated upon a common frontier with Greece, for only by such contiguity could she hope to have unhampered access to the sea. There was a community of interests between the national policies of Servia and of Greece. Greece desired an extended Aegean seaboard stretching beyond Salonika and preferably including Kavala. To attain this she joined hands with Servia, at the expense of their former ally, Bulgaria. By a coterminous frontier, Greece would have a considerable hinterland for Salonika, and Servia would overcome her obstacle to the sea by turning back the wedge that Bulgaria sought to drive between her and Greece. Their military programme was to drive Bulgaria from the region west of the Vardar, and their territorial understanding gave Salonika, Florina, Vodena, Seres, Drama and Kavala to Greece, and Struga, Ochrida, Monastir and Perlipe to Servia.

The Second Balkan War.—The war might appropriately be called the war of the Balkan countries against Bulgaria. At its height, Turkey, Rumania, Greece and Servia each sent an invading army into Bulgarian territory, each seeking to rectify its frontier at Bulgaria's expense. Bulgaria's military object at the outbreak of hostilities was to drive a wedge between the Greek and Servian forces, hold them apart, and eventually in-

vade Servian territory and strike at Belgrade. Rumania's entry on the field, however, precluded all possibilities of success against the Graeco-Servian forces. By thus participating in Balkan affairs, Rumania was moved by considerations not altogether territorial. Her acts may also be interpreted as meaning that hereafter Balkan hegemony would be Rumanian and that Rumania would be a party to subsequent negotiations looking to the disposition of the conquered territory.

The dissension and general warfare among the Balkan States afforded a splendid opportunity to Turkey, and her diplomacy was quick to seize it. Late in July she presented a note to the Powers declaring for a frontier of Turkey in Europe, which would indeed begin at Enos and end at Midia, but would make a curve following the course of the Maritza so as to include Adrianople. On July 22, Adrianople was retaken by the Turks, and the Turkish forces penetrated beyond the Maritza into Bulgarian territory. Greece was intent upon extending her Aegean seaboard and occupied successively Salonika, Kavala and Dedegatch. By these successful advances she obtained complete control of the Aegean section of the Salonika-Constantinople railway.

The Treaty of Bucharest.—Overwhelmed on all sides by the invading Servian, Greek, Turkish and Rumanian armies, Bulgaria sought to placate Rumania by offering her the strategic frontier previously claimed. With the Rumanian army withdrawn from her capital, Bulgaria hoped to engage successfully the Graeco-Servian forces. Rumania refused to accept Bulgaria's offer in the circumstances, and proposed a conference of the belligerents, Turkey excepted, on Rumanian soil. On July 30 the first session of the Peace Conference was opened at Bucharest with M. Majorescu, the Rumanian Premier, as president. On July 31, Bulgaria again offered Rumania a strip of territory in rectification of the latter's frontier line in the Dobrudja, but Rumania insisted on a definitive treaty between all the participants at the conference and threatened to proceed to Sofia. Thus circumstanced, Bulgaria was compelled to submit to a most humiliating treaty whereby she signed away territory on all sides. On the north, she ceded to Rumania Silistria and a strip of land running from Turtukai to Baltchik on the Black Sea, in all about 6,000 square kilometres; on the south, she lost Uskub, Monastir and Ochrida to Servia, and on the southeast, she was deprived of Salonika, Seres and Kavala. She was also forced to lose territory to the Turk, who crossed the Maritza with impunity (see "Treaty of Constantinople," *infra*). The new Servian and Bulgarian frontier follows the old boundary between the vilayets of Kossovo and Salonika along the watershed west of the Struma River until it comes near Strumnitza, where it turns to the west so as to leave that city to Bulgaria, and Kotchana to Servia. The line continues to a spur of the Belashitza Mountains to the northeast of Lake Doiran, which forms the new meeting point of the Servian, Bulgarian and Greek frontiers. It also forms the southernmost part of Bulgarian territory. The Graeco-Servian frontier runs to the westward from this point to Lake Prespa, leaving Gyvegeli to Servia; to the eastward it runs almost straight to the Mesta River, which it follows to the sea, following the Graeco-Bulgarian frontier.

The result is that Bulgaria is hemmed in on the Aegean by the creation of a situation not unlike that of Dalmatia on the Adriatic. Her coast line on the Aegean is restricted to a short strip between the mouth of the Mesta River and the gulf of Enos. Her sole port is Dedeagatch, which, it is reported, has but an indifferent anchorage. Of the rich tobacco fields of the hinterland of Kavala, three-fifths are Bulgarian and two-fifths are Greek, but Bulgaria's advantage is negatived by the inaccessibility of her fields to the sea. Bulgaria remonstrated at the entire proceeding on the ground that the division as dictated by her ex-allies was inequitable and was made with no regard to ethnic principles of distribution. Under protests of *force majeure,* the treaty was signed by Bulgaria on Aug. 10, and on Aug. 25 formal change of ratifications took

place by the signatory powers. (*Questions Diplomatiques et Coloniales*, XXXVI, 240.)

The Treaty of Constantinople.—The Treaty of Bucharest did not end Bulgaria's problem of frontiers. The question of the Turkish frontier was still to be decided. In the war of the Allies, Turkey was not slow to seize the opportunity to regain Adrianople. In July she crossed the Enos-Midia line, occupied Lule Burgas, Visa, Bunar Hissar and Adrianople, and continued as far west as Gumuldjina. An identical note of the Great Powers dated Aug. 7 failed to move Turkey in her determination to hold on to the territory regained. Bulgaria saw that she must deal with Turkey single handed and on Aug. 29 decided to open negotiations. The chief topic of discussion was Adrianople. The city was particularly important to Bulgaria now that she was deprived of Salonika and Kavala. Bulgaria was anxious to have the Maritza Valley and the railway in it, so as to have safe access to her sea port at Dedeagatch. As in the case of the Treaty of Bucharest, Bulgaria was compelled to yield to circumstances and Turkey regained not only Adrianople but Kirk Kilisse and Demotika as well, gaining in all about twice as much territory in Europe as was assigned to her by the Treaty of London. The treaty was signed on Sept. 29, and final ratifications were exchanged on Oct. 12. The new Turco-Bulgarian boundary runs up the Maritza to a point near Mandra, and passing west leaves Demotika and Adrianople to Turkey. On the north the frontier starts from Sveti Stefan on the Black Sea and runs westward so as to give Kirk Kilisse to Turkey and Malko Tirnovo to Bulgaria. Ortakeui and Mustapha Pasha remain Bulgarian. (*Ibid., supra*, 494.)

The Problem of Albania.—The problem of Albania reached its most acute stage when Servia announced in November, 1912, that she would have a sea port on the Adriatic. Servia's brilliant successes in western Macedonia gave her complete mastery over the Sanjak of Novibazar and old Servia, leaving Albania as the only barrier to her long cherished plan of reaching the sea. Her ante-bellum convention with Bulgaria (see *supra*) contemplated access to the sea on the west, leaving Bulgaria freedom of expansion to the east and to the Aegean. Shortly after the announcement, Servian troups occupied the Albanian port of Durazzo.

The Powers of the Triple Alliance had been reconciled to the barrier constructed by Russia's Pan-Slavic movement that apparently blocked their advance to the Aegean, but the announcement that a Slav power would also hew a corridor to the Adriatic was interpreted by the Triple Alliance, particularly by Austria-Hungary and Italy, as an attack nearer home. The possession of an Adriatic port by a Slav power meant not only a complication of Adriatic politics, but signified that a hostile Power was in a position to bottle up Austria-Hungary and menace Italy. Aside from international politics which grouped Austria-Hungary and Italy as allied powers, the two countries in the matter of Servian access to the Adriatic had a community of interest, leading them to veto any change in the *status quo* in the Adriatic.

For a time, it seemed that the Concert of Europe would be endangered by the problem of Albania. Sir Edward Grey in March declared that the Albanian problem, more than anything else, almost brought about a general conflagration. The Triple Alliance was firm in its declaration that the *status quo* in the Adriatic must be maintained; that an autonomous Albania was a *sine qua non* to a European Concert, and that Servian access to the Adriatic was inconceivable. On Dec. 20, the Conference of the Ambassadors at London announced that the Concert had accepted in principle Albanian autonomy and would provide in some way a means of allowing Servia commercial access to the Adriatic, the mode of such access being, however, undetermined.

Interests of the Various Powers.—Primarily and directly, Austria-Hungary and Italy were the most interested powers in checking Servia's advance to the Adriatic *via* Albania. Montenegro too was directly con-

cerned because she hoped for compensation in northern Albania, particularly the city of Scutari. While Servia was vitally interested and precipitated the problem of Albania, her case was argued and championed by Russia. The bargaining, too, was conducted by Russia on behalf of Servia and Montenegro as to what cities should be included in Albania or should go to Servia or Montenegro. In northern Albania, therefore, Austria-Hungary and Russia confronted each other, the one on behalf of her own interests, the other on behalf of her Slav protégés. Austria-Hungary felt that at a crisis a Servian port on the Adriatic would become Russian. She, together with Italy, decided upon the expedient of an autonomous Albania, to serve as a barrier to Slav advance to the Adriatic. In southern Albania, Italy confronted Greece. By the capture of Janina, Greece assumed mastery of Epirus, and thereby extended her coastline northward on the Adriatic. While Italy was quite reconciled to the occupation of Epirus by Greece and to its eventual annexation, she, like Austria-Hungary, was firm that no other Power should entrench herself on the Adriatic so as to threaten either herself or her ally.

Northern Delimitation.—Russia desired Ipek, Prizrend, Dibra and Djakova for Servia and Scutari for Montenegro. Austria-Hungary insisted that Scutari and Djakova be incorporated in Albania. She had a particular interest in Scutari, because for years it formed the center of her Roman Catholic propaganda in northern Albania, particularly among the northern tribes called the Malissori. With Scutari in Montenegrin hands, Austria-Hungary's work of years would be undone, and her penetration into northern Albania would be greatly hampered and delayed. She also sought to retain Djakova for Albania because of her interest in the northeastern tribes, to whom that city is the only available market place. In March, the northern and northeastern delimitations were finally agreed upon by Austria-Hungary and Russia. Ipek, Prizrend, Dibra and Djakova were assigned to Servia, and Scutari to Albania. These delimitations agreed upon, the Powers sent a collective note to Montenegro "inviting" her to raise the seige of Scutari and to evacuate the territory then occupied by Montenegro but assigned to Albania. Servia was requested to withdraw her troops from the territory assigned to Albania and to cease coöperating with Montenegro in investing Scutari. Servia complied reluctantly, but Montenegro persisted in attacking Scutari with the purpose of accomplishing its surrender and of confronting Europe with a *fait accompli* (see also IV, *Foreign Affairs*). The continued stubbornness of Montenegro strained the European Concert to its highest pitch. Europe feared independent Austro-Hungarian action, which appeared imminent by the mobilization of her forces in Bosnia and Herzegovina. Relations between Austria-Hungary and Russia particularly were very tense. Russia mobilized large forces along the Galician frontier and eastern Europe took on the appearance of an armed camp. The situation was relieved somewhat when Russia consented to an international blockade of the Montenegrin coast, but became serious again when early in May Scutari surrendered to Montenegro. Montenegro yielded, however, on May 6 and on May 14 an international contingent under the command of Vice-Admiral Burney entered Scutari and took possession on behalf of the Great Powers.

Southern Delimitation.—Another group of Powers were interested in delimiting the southern and southeastern frontier of Albania. In the south the champion of an autonomous Albania was Italy. The Power seeking Albanian territory was Greece and the Power generally thought to stand behind Greece was France. From an Italian standpoint, the danger of Greek aggression became imminent when Janina, the key to Epirus, fell to Greece. As Italy's strong naval base on the Adriatic is Taranto, it became a matter of vital importance that the Corfu channel should remain in Albanian hands. Italy, therefore, insisted on the inclusion in Albania of Cape Stylos, Ftelia Bay, and the Koritza district. In August the southern frontier was decided upon by the Powers. The line will run

from a point south of Cape Stylos to Lake Ochrida, and will leave the kaza or district of Koritza, as well as the city, to Albania. Greece has the coast line of the Turkish province of Epirus between the River Kalamos and Ftelia Bay. An international commission will trace the precise delimitation with instruction to be guided mainly by the nationality of the inhabitants of the districts through which it passes. On Dec. 13 Great Britain presented a circular note to the Powers, suggesting that Greece be allowed one full month to evacuate the territory assigned to Albania, dating from the time the Commission finally completed the delimitation. This was done to prevent parallel action threatened by Austria-Hungary and Italy to expel the Greeks unless they withdrew, not only from the territory assigned to Albania but also from that in dispute, by Dec. 31, the date originally set by the Powers.

The International Commissions.—The adjustment of Albanian affairs has been participated in by four international commissions. One has been appointed for delimiting the northern and northeastern frontiers upon the lines decided by the Great Powers, and another for delimiting the southern and southeastern frontiers according to their instructions. The third international commission, under leadership of the British Admiral Burney, maintained order in Scutari. A fourth commission, known as the International Commission of Control, will have jurisdiction over entire Albania, and will meet at Avlona, the present seat of the Albanian Provisional Government. Provision is made for a *gendarmarie* under officers selected from one of the small neutral Powers, and eventually an autonomous state will be set up under a prince chosen by the Great Powers. The International Commission of Control is composed of representatives of the Powers of the Triple Alliance and of the Triple Entente. On Dec. 3 it was announced that the Powers will nominate Prince William of Wied to the throne of Albania.

The Problem of the Aegean Islands.—The disposition of the Aegean Islands raised another Balkan problem for the European Concert. The problem has two general aspects, from the point of view of the countries immediately concerned and from the point of view of the Triple Alliance and the Triple Entente. The countries immediately affected are Turkey, Greece and Italy, the first by reason of prior ownership, the second by reason of conquest, and the third by treaty and present possession.

Italy now occupies the Sporades, namely, Patmos, Leros, Kalymos, Kos, Nisyros, Symi, Stampalia, Tilos, Rhodes, Kasos, Karpathos. They were occupied during the Turco-Italian War in May, 1912, and secured by the Treaty of Lausanne (*A. Y. B.*, 1912, p. 100). Greece, the only naval power of the late Balkan Allies, captured Thasos, Samothrace, Imbros, Tenedos, Hagiostrati, Mytilene, Psara, Chios, Samos, and Nikaria, in October and November 1912. Those in the present possession of Greece control the Dardanelles and are a menace to Constantinople. Their strategic value is not only vital to Turkey but to the Black Sea countries, Russia, Rumania and Bulgaria. The groups in the present possession of Italy affect the territorial integrity and security of Asiatic Turkey. Some of them practically form part of the coast line of Asia Minor and in hostile hands would form splendid military bases for attack on Asiatic Turkey.

Interests of Various Powers.—Turkey has, by the Treaty of London, divested herself of all her rights in the Islands, leaving the ultimate decision to the Powers. Italy has a prior interest in a particular group, and while her occupation was contingent, subject to the fulfillment of certain conditions, the fact remains that Italy is in actual possession, and, therefore, will have a voice in the ultimate disposition of the entire Archipelago. Greece's interests arise out of actual military occupation. Her claim for annexation is that of kindred race and character, it being freely asserted in Athens that ethnologically the Aegean Islands of right belong to Greece.

Italy would reserve full freedom of action under the Treaty of Lausanne, but if restitution is decided upon by the Great Powers she will do so on

condition that Turkey alone shall retain the Islands, as being absolutely necessary to the safety of her position in Asia. Her activity in delimiting the southern boundary of Albania which resulted in keeping Greece south of Cape Stylos indicates that Italy's policy is to oppose Greek expansion in the Mediterranean. The Triple Entente favors the cession of the Aegean Islands to Greece. The Triple Alliance would have those islands that control the Straits and those that lie off the coast of Asia Minor go to Turkey. In its circular note of Dec. 13 (see *supra*), the British Government also proposed that the islands occupied by Greece, except Imbros and Tenedos, be retained by her, subject to certain guarantees. As to the Dodecanese, now held by Italy, the note suggests that they be restored to Turkey.

Graeco-Turkish Negotiations: the Treaty of Athens.—Although the Treaty of London leaves the disposition of the Islands to the Powers, recent events indicate that that instrument will be ignored in this instance, as it was in the eventual inclusion of Adrianople, in Turkish territory. With the state of the Concert in its present condition, Turkey is playing her shrewdest game. Her policy of treating with her antagonists singly and successively is again evident. Observing the lack of unanimity in the Concert she ignored the Treaty of London, recaptured Adrianople, and compelled Bulgaria to treat with her separately. Bulgaria out of the way, Turkey turned to Greece, but she took care to deal with Greece alone, and had previously directed the attention of Servia, Greece's ally, to Albania by fomenting trouble there. Greece was forced into a conference at a most inopportune moment. Turkey isued a semi-official *communiqué* on Oct. 1, in which the Turkish position was stated to be that the Dodecanese, in the hands of Italy, and those islands occupied by Greece, particularly Chios, Mytilene, Tenedos, Imbros, and Samothrace, are necessary for the security of Turkey. The *communiqué* added significantly that Turkey was ready to go into conference with Greece "if Greece desires it and accepts the Ottoman point of view." On Oct. 6, the conference opened, and on Nov. 11 the Treaty of Athens was signed. No provision appears to have been made regarding the most important question of the Aegean Islands. Talaat Bey, the Turkish Minister of the Interior, is reported to have said in an interview that the question of the Islands was left to the Powers to decide (*Questions Diplomatique et Coloniales*, XXXVI, 504). The treaty disposes of the troublesome questions of domicile, nationality, property, title, prisoners of war, *muftis* and their jurisdiction. The Greek Government is subrogated to the rights, charges, and obligations of the Ottoman railways in the territory ceded to Greece (*ibid.*, 682).

The Concert of Europe.—The Ambassadors of the Great Powers held conferences at London contemporaneously with those held by the belligerents. For the time being, the conference of the Ambassadors constituted the Concert of Europe. Its functions were various. At times it would initiate proceedings by recommending proposals to the belligerents, formulating collective notes and generally laying down the principles of law and expediency that Europe should observe. At other times, the Conference of the Ambassadors acted as a court of appeal, as was the case when the Concert refused to recognize the right of indemnity urged by the Allies. It also took to itself the function of auditing the various proposals and counter proposals of the belligerents and subjecting their negotiations to the closest scrutiny. The Ambassador's Conference was, therefore, the voice of Europe. The Concert was all powerful in setting up an independent Albania. But since the voice of Europe was the blending of the united utterances of the Triple Alliance and of the Triple Entente, there were times when no concert was possible and the voice failed to speak. This was the case when Turkey occupied Adrianople and proceeded beyond the Maritza with impunity, on which occasion the Concert failed to act and shifted the burden of enforcing its previously uttered mandate upon Bulgaria, who was compelled to cope with Turkey single-handed after a disastrous war with

her former allies. The voice of Europe therefore is law only when the Triple Alliance and the Triple Entente are a unit or have compromised. When they fail to agree, there is no European law and the situation is left to the countries directly involved.

The Balkan Trial Balance.—The results of the Balkan War show that every Balkan state except Turkey gained in territory. It is estimated that Greece's gain is about 87 per cent., or 21,000 sq. miles; Servia's, about 80 per cent., or 15,000 sq. miles; Montenegro's, about 60 per cent., or 2,000 sq. miles; Bulgaria's, about 20 per cent., or 6,000 sq. miles; and that Turkey's loss is about 85 per cent., leaving about 9,700 sq. miles. Albania as presently delimited is about 11,000 sq. miles. Bulgaria has obtained a coast line on the Aegean about 60 miles long, but the gain of Greece on the Aegean was most marked. Salonika, a port most coveted by Bulgaria, is safe in the hands of Greece and is now more than 50 miles from the Bulgarian frontier.

In dividing the conquered territory, no regard was shown for ethnological considerations. The indications are that the Balkans under independent rule, as under the Turkish *régime*, will continue to be a melting pot of races, religions and nationalities. The *Novoye Vremya* estimates that Servia, according to the Treaty of Bucharest, gets about 1,200,000 subjects, the minority being Serbs, and the majority being Bulgars and Albanians in about equal proportions; that Greece and Rumania acquire each about 200,000 Bulgars; and that Bulgaria gets a mixture of Greeks, Turks and Armenians.

The International Financial Commission.—The object of this commission was to investigate and determine the financial liabilities of Turkey and the Allies, and particularly the amount of the Turkish debt to be transferred and apportioned among the belligerents in the Balkan War. The amount of the Turkish debt to be apportioned was estimated between twelve and twenty million pounds sterling. Questions of indemnity were to be considered by the commission; and also the determination of the burden each of the Allies was to assume of the various enterprises in the Turkish territory ceded to them, as well as the guarantees of interest on capital expended on railways which pass through the ceded territory.

A commission under the presidency of M. Gout, of the Ministry of Foreign Affairs of France, and composed of the councillors of embassies of the Great Powers, together with representatives of the French Ministry of Finance, conducted the preliminary deliberations. When these were completed, France invited the Powers interested to unite in a conference at Paris under the presidency of the Foreign Minister. On June 4, the commission, composed of representatives of the Powers of the Triple Entente and of the Triple Alliance, as well as of the belligerents of the Balkan War, was opened at Paris by M. Pichon, French Foreign Minister. In all, there were about 50 delegates. The commission adjourned on July 18, upon completion of preliminary investigation by the various committees. (*Questions Diplomatiques et Coloniales*, XXXVI, 182.) The war of the Allies made further deliberation and adjustment out of the question, as some of the representatives had become belligerents.

THE TRIPLE ALLIANCE AND THE TRIPLE ENTENTE

The Struggle for Mastery in the Mediterranean.—The great European problems of the year have a strong Mediterranean tinge. The land-locking of Servia, by the insistence of Austria-Hungary and Italy; the question of Albania; the disposition of the Aegean Islands; the conflicting claims of Greece and Bulgaria on the Aegean; the problem of Rumanian and Russian egress from the Black Sea are but some of the prominent problems that have pressed for solution. Groupings of nations are being formed with special reference to their policy in the Mediterranean. While the avowed purpose of the new groupings is to maintain the *status quo*, it is clear that a struggle is now on for hegemony between the two great groups, the Triple Alliance and the Triple Entente. The setting up of an Albanian state is an Alliance vic-

tory; the hemming in of Bulgaria, by the creation of a Dalmatia on the Aegean, whereby Greece obtained Salonika and Kavala, is a great advantage to the Entente. Bulgaria, who seems to have cast her lot with the Triple Alliance, has nevertheless become an Aegean power with a port at Dedeagatch.

With the withdrawal of the British war fleet from the Mediterranean, France has become the sole naval Power of the Entente in the Mediterranean. In the event of a general European war, France would bear the impact of a Mediterranean naval assault by the Triple Alliance. Her recent policy in cultivating the friendship of Spain and in championing the Greek cause in the Balkans may be best understood in the light of her sole naval guardianship on behalf of the Entente.

The Franco-Spanish Entente.—While the understanding with Spain does not appear to have the formal aspect of a treaty, the utterances of the President of France and of the King of Spain, the official and semi-official interviews, and the tone of the press conceded to be officially inspired, all point to an *entente cordiale* between the two Latin countries that is Mediterranean in scope. Visits between the rulers of the two countries were interchanged during the year. That of President Poincaré to Spain, in October, was the more significant. On that occasion the Spanish Prime Minister, Count Romanones, in a statement to the press at Cartegena, said that conversations between himself, M. Pichon, the French Foreign Minister, and Señor Lopez Munoz, the Spanish Foreign Minister, had been exchanged on questions of political, economic and commercial nature interesting France and Spain, and that there was perfect concord between their views. He further stated that the policy of the two Governments will continue on the principles laid down in the agreements of 1904, 1907 and 1912. The allusion to the declarations of 1907 is significant. They were exchanged between Marquis del Muni and M. Pichon, then also the French Foreign Minister, simultaneously with a similar exchange of declarations between Great Britain and Spain, the subject of the declaration being the territorial *status quo* in the Mediterranean and the Atlantic adjacent to the coasts of Europe and Africa. Toasts exchanged by President Poincaré and King Alfonso recalled the scope of the Mediterranean and the Atlantic agreements of 1907. Another significant fact was the participation of the British warship *Invincible* in the festivities at Cartegena. The *Journal des Débats* finds that these circumstances and references bring out the fact that "the Franco-Spanish Mediterranean entente is also an Anglo-Franco-Spanish entente."

The Franco-Spanish Entente and the overtures of France to Greece were interpreted in Italy as an attempt by France to "clip her wings" in the Mediterranean. The probable effect of the Franco-Spanish Entente is to drive Italy fast into the arms of Austria-Hungary and Germany, and postpone the day of disentangling her from the Triple Alliance.

The Position of Greece.—With the possession of Salonika and Kavala, Greece is entering upon a career of a great commercial nation. She is in a position to control the important Near Eastern trade and trade routes. The annexation of the Aegean Islands will place her in complete mastery of the eastern Mediterranean. In the struggle for mastery of the Mediterranean, Greece is the corner stone of a new balance of power. Both Germany and France have made overtures to Greece. The visit of King Constantine and the Crown Prince to Berlin and their attendance at the German Army maneuvers in Silesia, in company of the chiefs of the General Staffs of the Triple Alliance have given cause to believe that Greece was to enter the Triple Alliance; and King Constantine's Potsdam speech, in which he paid a most glowing tribute to German military training caused much rejoicing in the German Press and an outburst of phil-Hellenism. On the other hand, France was generally recognized as the champion of Greece in the delimitations of the southern frontier of Albania and of the inclusion of Kavala in the new Greece. With Spain and Greece in the groups of the Triple Entente, Italy will be sub-

ordinated as a Mediterranean Power; and with Russia assured egress from the Black Sea, the Mediterranean balance would tilt in the favor of the Triple Entente.

European Armaments.—The total collapse of Turkey has led to an increase of the armies of Europe, the details of which are given on another page (see IV, *Foreign Affairs*). Germany was the first to take steps to increase her army. The collapse of Turkey, the fear of Pan Slavism, the stubbornness of Montenegro, and Russia's prestige in the Balkans, all were factors that hastened Germany to restore the "balance." The speech of the Imperial Chancellor, von Bethmann-Hollweg in April, in introducing the army bill in the Reichstag is significant. The Balkan War, he said, "has substituted for passive European Turkey other states of feverish political activity. . . . Should the great European conflagration between Germanism and Pan Slavism come, this change would alter the balance in Germany's disfavor." The German army increase means the recruiting of about 160,000 additional men annually, bringing the total to about 800,000 men. The measures for the increase of the German army compelled France to take measures to keep pace with her northern neighbor or submit to a superiority of about 30 per cent. France met the situation by increasing the period of military service from two to three years.

In October Russia announced measures for the increase of her army. The war office statement attributes the necessity to increase the Russian peace strength to events that are "connected with the steps taken by western European powers for increasing the strength of their armies." Russia met the situation by extending the legal term of service of infantry from three to three and one-quarter years. It is estimated that the Russian army will be thereby increased by about 365,000.

HAGUE TRIBUNAL AWARDS

The "Carthage" Case.—Two interesting awards were made during the year by the Arbitral Tribunal of the Permanent Court of Arbitration at the Hague, in the cases of the French mail steamers *Carthage* and *Manouba* plying between Marseilles and Tunis, captured in January, 1912, by the Italian naval authorities in the Turco-Italian war (*A. Y. B.*, 1912, p. 100). The *Carthage* was stopped on Jan. 16, 1912, in the open sea by an Italian warship. The commander of the warship found an aeroplane on board consigned to Tunis and declared it contraband. As it was impossible to transfer it from one vessel to the other, the *Carthage* was taken to Cagliari, and there detained until Jan. 20. The court held that the information of the Italian naval authorities was too general, and had too little connection with the aeroplane to admit of sufficient reason to establish hostile destination, and, therefore, they were not justified in capturing the vessel transporting the aeroplane. Under these circumstances, it was not necessary to inquire whether the aeroplane should be by its nature included in articles of contraband, conditionally or absolutely. The award was for 75,000 francs to the steamship company and 25,000 francs to the aviator, which were to be paid by the Italian Government.

The "Manouba" Case.—The steamer *Manouba* was stopped in the waters of the Island of San Pietro by an Italian warship on Jan. 18, 1912. Twenty-nine Turkish passengers on board were suspected of belonging to the Turkish army, and in consequence the *Manouba* was conducted to Cagliari. There the captain of the *Manouba* was summoned to deliver the Turkish passengers to Italian authorities and upon his refusal the authorities proceeded to seize the vessel. The passengers were finally deliverd to the Italian authorities, and the steamer was released and resumed its trip to Tunis. The court considered the three successive phases of the case—the capture, the temporary seizure, and the arrest of the Turkish passengers—and examined into the legality of each of these phases considered as isolated acts. The court held that the Italian naval authorities were not within their rights in capturing the *Manouba* and in compelling it to leave its course, unless it were for the purpose of arrest, after the captain had refused to obey

a summons of surrender of the Ottoman passengers; and that as no summons had been made before the capture, the act of capturing the steamer and the taking of it to Cagliari was not legal. But the authorities had the right at Cagliari to take such measures of compulsion to detain the steamer until the delivery of the Ottoman passengers; and the illegality of the capture originally and the taking of the steamer to Cagliari did not vitiate the succeeding phases of the case. The award was for 4,000 francs to be paid by the Italian Government.

INTERNATIONAL RELATIONS IN ASIA

CHINA

Five Power Loan.—The famous loan was finally negotiated on April 26, after many delays and interruptions. Although a party to the negotiations, the United States withdrew in March when President Wilson announced his policy with regard to China (see *supra*). The Consortium, therefore, was composed of banking groups of Great Britain, Germany, France, Russia and Japan. The loan was for £25,000,000, and is to be used exclusively for the Chinese Government's liabilities, for the redemption of outstanding provincial loans, for the payment of losses arising from the revolution, for the disbanding of troops, for the redemption of a certain amount of the Chinese Government's provincial notes, for the payment of current expenses of the Chinese Administration, and for the reorganization of the salt administration. The loan is secured on the whole salt gabelle, subject to previous loans, but all future surplus of the maritime customs is to be utilized for the redemption of the loan, and a corresponding amount for the salt revenue will be released for Chinese Government purposes. The period of the loan is for 50 years, with interest of five per cent., and the price of the issue was 90. The Chinese Government is not to issue a further loan of the salt gabelle without the consent of the Consortium. (See also IV, *Foreign Affairs.*)

The fate of the loan, the negotiations for which are reviewed in the last issue of the YEAR BOOK (pp. 94-6), was uncertain for months, owing to the difference of opinion as to the exact purposes to which the loan should be applied. Russia was fearful lest the Chinese Government would thereby be enabled to prosecute military measures against Mongolia, with whom Russia had entered into a treaty recognizing its autonomy. England was probably similarly placed, because of her long cherished plan to disentangle Tibet from the Empire, and to set it up as an autonomous state. France, too, as late as February, threatened to withdraw unless a Frenchman was appointed one of the three Chinese Government advisers in the matter of the loan. Japan was careful that Chinese railways should not penetrate into Manchuria. The interest of the Consortium is interpreted to be primarily political, the object being to secure political control and supervision through the medium of finance. Japan and Russia insisted on participation in the loan, and this insistence is interpreted as an expression of a desire to participate with equal voice in the control of the finances of the Chinese Republic. It is precisely this phase of the loan that led President Wilson to withdraw. His statement is clear that one of the eventualities of the loan may entail the use of repressive measures against the Chinese Government which would tend to impair the administrative independence of China itself.

Mongolia and Tibet.—While all Europe was absorbed with the Balkan conflicts, Russia and Great Britain were each engaged in negotiations with the Chinese Republic for recognition of their respective special interests in Mongolia and Tibet. As in the case of Persia, their activities appeared parallel, one pressing the Chinese Republic for recognition of Mongolian autonomy, the other urging the recognition of Tibetan autonomy.

Following the Russo-Mongolian treaty of 1912 (*A. Y. B.*, 1912, p. 96), Russia began to take active steps to

cultivate Mongolian relations and to obtain Chinese recognition of Mongolian autonomy. To accomplish the first, a Mongolian mission to St. Petersburg was arranged, headed by the Mongolian Minister of Foreign Affairs, who had negotiated the Russo-Mongolian treaty. The envoys were received by the Czar in January, and in February the Russian government sent a number of officers of the Russian Siberian Cavalry to act as instructors for the Mongolian army. In the meantime Russia's efforts were centered on obtaining Chinese recognition of Mongolia. The Chinese Government made unsuccessful efforts to retain Mongolia by offering to assume Mongolia's debts to Russia and to the Taitsing Bank. On Nov. 5 the negotiations between Russia and China were completed. By the agreement China recognizes the autonomy of Outer Mongolia and engages not to interfere in its internal affairs, nor to send troops there. Russia recognizes Chinese suzerainty over Outer Mongolia and engages not to maintain troops there, except consular guards. Both China and Russia agree to abstain from colonizing Outer Mongolia. China declares herself ready to accept the good offices of Russia to establish relations with Outer Mongolia conformable to the Russo-Mongolian treaty of 1912 (*A. Y. B.*, 1912, p. 96). In an exchange of notes on Nov. 5 between the Russian Minister at Pekin and the Chinese Minister of Foreign Affairs, Russia recognizes that Outer Mongolia is part of the territory of China (*Questions Diplomatiques et Coloniales*, XXXVI, 759). The limits of Outer Mongolia are not defined, and are to be determined by a conference at Kiakhta, where the Russian, Chinese, and Mongolian representatives will meet on an equality.

While Russo-Chinese negotiations were being conducted concerning Mongolia, Great Britain pressed the matter of an autonomous Tibet. Great Britain had long marked out Tibet as a buffer state to India and urged Chinese recognition of Tibet. In September, a conference between the representatives of Tibet and the Chinese Republic was arranged by Great Britain. In October, the conference met at Simla under the presidency of Sir Arthur McMahon. As Great Britain insisted that the representatives meet on equal terms, it is thought that the Simla Conference will conclude with a recognition by China of an autonomous Tibet.

The terms of a Mongol-Tibetan treaty were made public in January. A treaty between these countries is interpreted as a concerted attempt to sever their relations with the Chinese Republic. By the treaty they recognize each other's independence and undertake to open their frontiers to the goods and products of each other. The subjects of each have the right to establish industrial and financial enterprises in the other's territories, and both undertake to spread the religion of Buddhism.

THE NEAR EAST

Railway Concessions.—Negotiations in Paris between Djavid Bey and the French Government resulted in a provisional agreement whereby France acquires important railway and port concessions in Syria and in Armenia. France in return will grant a loan to Turkey of about £28,000,000. The ports in which France gains special concessions are: Haifa and Tripolis in Syria, Heraclea (Eregli) and Ineboli on the Black Sea. It was originally announced that railway concessions in Syria included a right to extend the Aleppo-Homs Railway from Layak, the southern terminus, to Lydda, where the line will join the Jaffa-Jerusalem railway, and that in Armenia they related to projected lines from Samsun to Sivas and Kharput, and from Trebizond to Sivas. But in October, it was announced that the original concessions in Armenia were modified in deference to Russia and her rights based on her convention of 1900 with Turkey. The concessions as amended will not include the extension of the Samsun-Sivas-Pingan-Erzinghian line to Erzerum, but to a point, Pekjaridj, 50 miles northeast of Erzinghian. The south-going section of the line from Pingan to Kharput is extended as far as Arghana and a concession is added for a line from Arghana to Bitlis and Van. (*Questions Diplomatiques et Coloniales*, XXXVI, 555.)

In February it was announced that Russia acquired from Persia a right to construct a railway from Julfa to Tabriz with an extension to Lake Urumiah and a preferential right to build a railway from Tabriz to Kazvin. The first concession is evidently designed by Russia for the purpose of penetrating into north Persia in order to accomplish its complete pacification.

The Persian Gulf.—An event having important bearing on the Bagdad Railway and its terminus at the Persian Gulf was the agreement between Turkey and Great Britain announced in May. Under the agreement Great Britain recognizes the suzerainty of the Porte over Koweit, which is to be an autonomous *kaza* of the Ottoman empire. The Porte engages not to interfere in internal affairs of Koweit or in questions of concessions and explicitly recognizes the validity of conventions between the Sheikh and Great Britain. The Porte abandons pretensions to suzerainty over the peninsula of El Katr, the Bohrein Islands, Muscat, and the territory of trucial chiefs, and recognizes the right of Great Britain to light, buoy and police the Gulf. The significance of this agreement lies in the fact that the Persian Gulf terminus of the Bagdad Railway, a German interest, is completely in British control. To be free from British influence the terminus must be shifted to Basra.

INTERNATIONAL PEACE AND ARBITRATION

JAMES L. TRYON

The Palace of Peace.—The most significant event of the year in the peace movement was the dedication of the Palace of Peace at The Hague. This is the first courthouse of the family of nations. By it the organization of international justice, which is now on a permanent basis, has become visualized even to the man in the street. The ceremony of dedication took place in the large court room of the Palace on Aug. 28, in the presence of Queen Wilhelmina, the Prince Consort, the Queen Mother, distinguished officers of state, foreign ministers, members of the Permanent Court of Arbitration, and Andrew Carnegie, who gave the money for the building, approximately $1,500,000. The control of the Palace was transferred from the Carnegie Foundation to Jonkheer Reneko Van Swinderen, Minister of Foreign Affairs of the Netherlands, and *ex-officio* president of the Permanent Administrative Council of the Permanent Court of Arbitration. Inspired by a suggestion made by Baron d'Estournelles de Constant, the nations have made gifts toward the construction and furnishing of the building and the adornment of the grounds. The interior is adapted not only to the sessions of the court, but to the use of committee conferences, to a library of international law, and to administration.

International Peace Conferences.—The dedication of the Palace of Peace was preceded and followed by international meetings held in the interest of peace and arbitration. The first of these, the twentieth Universal Peace Congress, was in session Aug. 20-23 in the Knights Hall, the building in which the Second Hague Conference met in 1907. The Interparliamentary Union meeting was held in the Knights Hall, Sept. 3-5, under the honorary presidency of Lord Weardale, and the chairmanship of the Honorable Mr. Tydeman, president of the Netherlands group of the Interparliamentary Union. The hospitality extended to the members of the Union and the congressists by the municipalities and the Government, and the thoroughly organized committees of arrangements made the meetings in Holland memorable in the annals of the peace movement.

American Agencies of Promotion.—The fourth American Peace Congress was held at St. Louis, Missouri, May 1-3, under the presidency of Hon. Richard Bartholdt. It was arranged and financed by the Business Men's League of St. Louis. Thirty states and 50 cities were represented by delegates who came not only from peace societies but from business, educational, religious, and other associations. The Clark University Conferences,

which are devoted to the study of racial conditions and present day developments in various foreign countries, took for the general subject in 1913 the study of Latin-American relations with the United States. The Lake Mohonk Conference was continued under the direction of Daniel Smiley with its usual success.

The report of Charles W. Eliot on his visit to the Far East has been published by the Carnegie Endowment, under whose auspices he made his journey. President Eliot has emphasized in his recent utterances the importance of the organization of international justice as essential to international peace. Prof. Francis G. Peabody has recently made a tour of the Far East, and Robert Bacon, formerly Secretary of State, is visiting South American countries under the auspices of the Endowment, for the purpose of promoting interest in peace and arbitration.

The most original effort made by the peace movement during the year along practical lines was the sending by the Carnegie Endowment of a special commission to the Balkan countries to report on conditions caused by the recent wars. This commission consisted of Dr. H. N. Brailsford (England); Prof. Samuel T. Dutton, of Columbia University (United States); M. Justin Godart, deputy for Lyons (France); Professor Miliukoff, member of the Duma (Russia). The work of this commission marks a distinct attempt on the part of the peace movement to deal with actual situations of critical character as well as to devote itself to educational propaganda by literature and lectures.

The need of more complete international organization of peace societies has become apparent to workers engaged in the peace cause. During 1914 it is expected that a special meeting will be held somewhere in Europe for the revision of the statutes of the Bureau of International Peace at Berne, which at present is the central council of all the peace societies. In Great Britain, the Garton Foundation, which has taken up the work of Norman Angell, author of *The Great Illusion*, has extended its influence by the organization of societies, debates, and courses of lectures. In the United States the effort for the organization of the Church Peace League, an association with over a thousand members which will enlist clergymen in the cause of international peace, has been perfected, with Bishop David H. Greer of New York as president, and the Rev. Frederick Lynch as secretary. The American Peace Society, with headquarters at Washington, has now a total of 28 branches, and is growing rapidly. The World Peace Foundation has added to its staff Prof. Charles H. Levermore, for work among colleges, George W. Nasmyth, for work among students as director of the International Bureau of Students, and Alfred G. Bryant, for organization work among states and cities. Conferences on the plan of a seminar have been projected by the World Peace Foundation and will be carried on by men and women who are authorities in the peace movement. Norman Angell has visited the United States under the auspices of the Foundation and David Starr Jordan has made a tour of European countries. Dr. Jordan also took an active part in the discussion that arose over the Alien Land bill in California, which was said to have discriminated against the Japanese (see *International Relations of the U. S., supra;* and I, *American History*). Several of the peace societies organized campaigns of meetings and petitions for the purpose of influencing Congress to repeal the exemption clause in the Panama Canal Act or to submit the dispute on that subject to arbitration.

Celebration of the Treaty of Ghent. —A conference of the American Committee for the Celebration of the One-Hundredth Anniversary of Peace Among English-Speaking Peoples with British and Canadian committees was held in New York City May 5-9. The British delegation was headed by Lord Weardale, the Canadian by Sir Edmund Walker, and the Australian by Sir George Reid. Arrangements were under the general charge of John A. Stewart and Andrew B. Humphrey of New York. The delegates were given public receptions and banquets, not only in New York but in Boston, Philadelphia, Chicago, and other cities. At Washington they were received by the

President and the Secretary of State. Eminent men participated in the proceedings and drew up a tentative programme for the observance of the centenary. A conference of the American committee was called to meet in Richmond, Va., Dec. 3 and 4, for the purpose of laying out a plan for city and state celebrations, and for the observance of the peace which has endured between the United States and other countries as well as Great Britain.

Third Hague Conference.—Although there has been general inertia in regard to the calling of the Third Hague Conference, which, by a resolution adopted in 1907, was expected to meet in 1915, first being preceded by the work of a preliminary committee called two years in advance, an effort is gathering force to induce the United States or some other Government to take steps toward having the nations assembled. Several nations have appointed official national committees on the subject of the programme, but an international committee has not yet been formed. The American appointees of President Taft (J. Reuben Clark, Jr., chairman; Gen. Enoch H. Crowder, Judge-Advocate-General of the U. S. Army; and Rear-Admiral Wainwright, U. S. Navy) have recently submitted their report to the Department of State. So far as a consensus of opinion is available, it may be said that the programme of the conference is likely to include some attempt at the codification of international law, an effort to devise a plan by which the judges of the Court of Arbitral Justice may be appointed, a discussion of the question of aerial warfare, a code for the regulation of maritime warfare, a prohibition against war loans to belligerents by neutral nations, and a discussion of sanctions to prevent the violation of international law. A discussion was instituted at the Interparliamentary Union for the extension of the system of permanent neutralization to small countries other than those which, like Belgium and Switzerland, have adopted this plan. An effort was also made at the Interparliamentary Union to enlarge the range of topics for discussion from matters relating purely to arbitration and peace, and so increase the scope of the international order.

The Bryan Peace Plan.—The most popular peace project of the year is that which is known as the Bryan plan, the spokesman for which is Secretary Bryan himself. This plan provides for treaties by which the United States shall institute with other nations a system of permanent international commissions of inquiry, on the general principle of the commission adopted by the Hague Conferences of 1899 and 1907, but with certain advanced features which these conventions do not contain. The Bryan plan, like article three of the arbitration treaties of President Taft, provides that in case diplomacy has failed to adjust any international difference, the dispute may be taken to a permanent international commission of inquiry for impartial investigation. The plan provides for a commission of five members, one from each contracting country, one chosen by each contracting country from some other country, and one chosen by these four. It gives the commission authority to take the initiative. While a question is being considered by the commission, governments which are parties to the dispute shall neither declare war nor increase their armaments, but the clause in regard to the truce of armaments will not apply if one of the countries becomes menaced in a dispute with a third country. It is understood that in the matter of details considerable liberty will be allowed, and therefore all the treaties that may be adopted by the United States embodying the Bryan plan may not be uniform in character, though they will contain the general principle of an investigation by an impartial commission, the report of which will not bind the governments to arbitration or any other action, although it is expected to enable the governments to see for themselves what course of procedure to take. At the time of President Wilson's message to Congress on Dec. 2, the Bryan plan, which was first proposed at a conference of the Diplomatic Corps in Washington soon after the new Administration came into power, had been adopted in principle by 31 Governments. Four of these, Salvador, Guatemala, Panama,

and Honduras, have embodied it in treaties with the United States. The Bryan plan was unanimously endorsed by both the Universal Peace Congress and the Interparliamentary Union.

International Arbitrations.—It may be said that arbitrations are being held somewhere all the time. Many of these are minor cases which are dealt with by special tribunals and relate to boundary questions or to claims. On May 6, 1913, the Permanent Court of Arbitration at The Hague gave its award on the case between France and Italy, arising over seizure of the ships *Carthage* and *Manouba* (see *supra*). The awards in each question were in favor of France. In the case of a question of delimitation, arising between Holland and Portugal over their respective boundaries in the island of Timor, the dispute, instead of being submitted to the Permanent Court of Arbitration at The Hague, was given to the President of the Swiss Confederation. A special tribunal, erected by the United States and Great Britain for the adjudication of pecuniary claims, consisting of Sir Charles Fitzpatrick of Canada for Great Britain and Chandler P. Anderson, former Counsellor to the State Department, for the United States, with M. Henri Fromageot of France as third arbiter, began its sessions in May, having on the docket about 300 cases. (See also *International Relations, supra.*)

PANAMA-PACIFIC INTERNATIONAL EXPOSITION

The Panama-Pacific Exposition, authorized by Act of Congress as the nation's celebration of the construction of the Panama Canal, is officially located in San Francisco, Cal. By proclamation of the President of the United States all nations are invited to participate therein. The Panama Canal, by affording a more direct waterway from Europe and the Americas to the Orient, will, it is felt, advance the commerce of the world, promote universal peace, and elevate humanity. As a consequence of changing routes of ocean travel, new migrations of men will take place, new areas of productivity will develop, new cosmopolitan cities will arise, and new financial and trade connections will be established. The location of the celebration on the Pacific slope of North America, on the line of what is termed "the meeting place of the East and the West," has been chosen as that which will best enable an exposition to illustrate and emphasize the good work of the Canal.

The site chosen is one of the most beautiful to be found in the United States, facing north on the Bay of San Francisco, with majestic mountains in the distance, rising behind the picturesque heights of the city. Ocean-going vessels may discharge cargoes at the grounds and a standard-gauge railway running through them will transport carload lots directly into the buildings. The site comprises 635 acres, and is divided into three sections.

In the center, compacted into a group, and separated by connecting courts and avenues, are placed the great exhibit palaces, 11 in number, each representing a department in the industrial classification, as follows: Machinery Hall, Varied Industries, Manufactures, Liberal Arts, Education and Social Economy, Food Products, Agriculture, Transportation, Mines and Metallurgy, Horticulture, to which is added Festival Hall. Eight of these palaces form a parallelogram, their façades modified to form the walls of the intervening courts, their architectural features harmonized into a noble and beautiful picture. Over the whole is lavished a color scheme, caught from California sun, sea and shore and specially designed by one of the world's masters in color. The dominating feature of the architecture is a seven-storied tower, called the "Tower of Jewels," rising over the south main entrance to a height of 410 ft. The palaces are entirely adequate to a display of the world's resources and products. They are constructed of an imitation of Travertine marble, the prevailing tone of which is old ivory. The courts are highly ornamented by colonnade, statue, fountain and mural painting. More than 250 groups of statuary are attractively placed within the grounds.

To the east of this central section,

65 acres are devoted to the amusement concessions, all of which have been selected for their educative as well as entertainment value, some of them representing an original outlay of a quarter of a million dollars. To the west, spreading fan-shaped along the bay, is the section devoted to the pavilions of the foreign nations and of the states; while still beyond these lie the aviation and athletic field; the drill grounds, capable of showing ten thousand troops in drill at the same time; and the stock yards, buildings and racetrack.

The Exposition is endowed by an initial appropriation of approximately $20,000,000 from the state of California and counties and the city of San Francisco and its citizens. Based on the history of previous expositions and the present outlook for this, it is estimated that more than $80,000,000 will be expended, as follows:

Appropriation by state of California (tax levy)	$5,000,000
Appropriation by city of San Francisco (bond issue)	5,000,000
Subscribed by citizens of San Francisco	7,000,000
Foreign governments (estimated)	10,000,000
States of the United States (estimated)	8,000,000
Counties of California (estimated	2,000,000
U. S. Government (estimated)	1,000,000
Individual exhibitors, for installation and maintenance (estimated)	25,000,000
Concessionaires, for installation, operation and equipment (estimated)	10,000,000
Operating and closing by Exposition (estimated)	7,000,000
Total	$80,500,000

Thirty-one foreign nations have announced their intention to participate, as follows: Argentine, Bolivia, Brazil, Canada, Chili, China, Costa Rica, Cuba, Denmark, Dominican Republic, Ecuador, France, Guatemala, Hayti, Holland, Honduras, Italy, Japan, Liberia, Mexico, New Zealand, Nicaragua, Panama, Persia, Peru, Portugal, Salvador, Spain, Sweden, Uruguay, Venezuela. Great Britain, Germany, and Russia have officially declined to participate, but their decision may be reversed under pressure of public demand. Thirty-five states and territories of the United States also have announced their intention to participate, namely: Arizona, Colorado, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, the Philippines, Porto Rico, South Carolina, South Dakota, Texas, Utah, Washington, West Virginia, Wisconsin, Wyoming.

Although most conventions and congresses fix their meeting place but one year in advance, already more than 180 of these bodies have named San Francisco for 1915. Among the most prominent of these are:

International Congress on Education.
International Efficiency Congress.
International Congress on Marketing and Farm Credits.
International Electrotechnical Commission.
International Electrical Congress.
International Council of Nurses.
International Engineering Congress.
International Gas Congress.
International Congress of Authors and Journalists.
Woman's World Congress of Missions.
National Congress of Mothers.
National Drainage Congress.
Congress on Marriage and Divorce.
American Red Cross.
American Historical Association.
Association of Collegiate Alumnæ.
Association of American Universities.
American Society of Mechanical Engineers.
American Gas Institute.
Astronomical and Astrophysical Society of America.
International Association of Labor Commissioners.
American Electrochemical Society.
National Association of Railway Commissioners.
American Society of Animal Nutrition.
American Institute of Electrical Engineers.
National Academy of Political and Social Science.
American Home Economic Association.
Insurance Commissioners' National Association.
American Academy of Medicine.
Associated Harvard Clubs of America.
American School Peace League.
National Educational Association.

The Exposition will be open from Feb. 20 to Dec. 4, 1915. Its plan is already completely wrought out. The architectural, sculptural, color and electrical adornment is being applied. All exhibit palaces are under construction and will be finished by July, 1914. The four divisions, works, exhibits, concessions and exploitation, are organized in force, and it is expected that all preparations will be completed well in advance of the opening date.

INTERNATIONAL CONGRESSES AND EXPOSITIONS

International Congresses.—Below is a list of the important international congresses and conferences of the year. Many of the congresses are given extended notice in other departments of the YEAR BOOK, complete references to which will be found in the Index.

Aeronautic Federation, Paris, Jan. 28.
Agriculture, Rome, May 6.
Alcoholism (fourteenth), Milan, Sept. 22.
Alimentation Workers, Paris, Jan. 27.
Children, Protection of, Brussels, July 23-26.
Commercial Instruction, Budapest, Aug. 31-Sept. 5.
Cotton (ninth), The Hague, June 9-11.
Cultivation by Machines (second), Soissons, Aug. 22-30.
Customs, Paris, May.
Deaf and Dumb (first), Ghent, Aug. 18.
Esperanto (ninth), Berne, Aug. 24.
Eucharistic (fourteenth), Valletta, April 23.
Factory Inspection, Chicago, May 6.
Fire Engineers (forty-first annual), New York, Sept. 1-6.
Fishery (sixth), Ostend, Aug. 18-20.
Food Products, Cooking and Hygiene (second), Lyons, May 1-18.
Geographical (tenth), Rome, March 27.
Geological (twelfth), Toronto, Canada, Aug. 7-14.
Historical Studies, London, April 3-9.
Housing, The Hague, September.
Infant Mortality, London, Aug. 4-5.
International Associations (second), Brussels, June 15-19.
International Law (twenty-sixth), Oxford, Aug. 4-9.
Interparliamentary Union (eighteenth), The Hague, Sept. 3-5.
Jurists, Berlin, Feb. 10-11.
Law, Madrid, Oct. 1.
Literary and Artistic Property (thirty-third), The Hague, July 16-19.
Medicine, London, Aug. 6-12.
Neurology (third), Ghent, Aug. 20.
Olive Growers, Ajaccio, Oct. 7-13.
Opium Conference, The Hague, July 1-9.
Pan-American (sixth), Lima.
Peace (twentieth), The Hague, Aug. 20-23.
Physical Culture, Paris, March 18-20.
Physiological (ninth), Groningen, Sept. 2-6.
Physiotherapy (fourth), Berlin, March 26-30.
Polar Commission, Rome, April.
Psychology (second), Paris, March 25.
Refrigeration (third), Washington and Chicago, Sept. 15-24.
Religious Progress, Paris, July.
Saccharine and Analogous Substances, Paris, Feb. 3.
School Hygiene (fourth), Buffalo, Aug. 25-30.
Students (eighteenth), Buffalo, Aug. 29-Sept. 20.
Sunday School (seventh), Zurich, July 15.
White Slave Traffic (fifth), London, July.
Woman Suffrage, Budapest, July 15-20.
Woman Suffrage, Men's League for (second), Budapest, June 15-20.
Woman's Christian Temperance Union (ninth), Brooklyn, Oct. 23-28.

International Expositions.—A general international exposition was held at Ghent, from April to November. The important special expositions were as follows:

Art (eleventh), Munich, June-October.
Automobiles (fourth), St. Petersburg, May 20-June 3.
Building, Leipzig, May-October.
Color Printing, Leeds, March.
Fire Prevention, New York, Sept. 1-6.
Flower Show, New York, April 5-12.
Graphic Arts, Amsterdam, July 15-Sept. 15.
Hygiene, Lima, Nov. 2-Dec. 31.
Industrial Motors, Parma, June-October.
Pharmaceutical (third), Vienna, Sept. 6-28.
Safety and Sanitation, New York, Dec. 11.
Watering Places and Vacation Resorts, Vichy, May 5-Oct. 15.

IV. FOREIGN AFFAIRS

LATIN AMERICA[1]

ALBERT HALE

During 1913 peace in Latin America was vitally disturbed only in Mexico. Interest was keenly aroused by the election of Mr. Wilson and the probable selection of Mr. Bryan as Secretary of State. Much discussion was therefore provoked by President Wilson's statement on March 11. Its chief paragraph was as follows:

> We can have no sympathy with those who seek to seize the power of government to advance their own personal interests or ambition. We are the friends of peace, but we know that there can be no lasting peace in such circumstances. As friends we shall prefer those who act in the interest of peace and honor, who protect private rights and respect the restraints of constitutional provision.

While no particular nation is therein mentioned, the significance of the address lies in its application to the Republics of Latin America, and is related, in its essence, to the present Administration's interpretation of the Monroe Doctrine. The suspicion of the American Republics was not, however, altogether allayed by some of the practical steps deemed necessary by the Administration, and as the year ended there was evidence that those who were enemies of the policy of the United States had a considerable following in Latin America. One contributary cause to this was the constant effort maintained by the Pan-Latin, Manuel Ugarte, in his writings and public utterances, to oppose what he called the "imperialism" of the United States. Forces against such a misunderstanding, but by no means directed intentionally toward that end, were observed through the tour in South America undertaken by Robert Bacon, formerly Ambassador to France, who, as representative of the Carnegie Endowment for International Peace, reached Brazil in October and delivered addresses in many of the capitals of South America, his purpose being to arouse the sympathy of all serious students to the benefits of international understanding and the resultant adherence to peaceful methods in all international relationships. Ex-President Roosevelt left New York on October 4 for Brazil and Argentina, where he was to deliver, on the invitations of the Governments, public addresses on topics of great international significance. The writer also, under the direction of the Pan-American Union, spent the latter half of 1912 and a part of 1913 in South America, giving public conferences with the official support of various Governments, on the Pan-American Union and its unique activities in behalf of better friendship and commercial interchange. Gen. Rafael Reyes, a former president of Colombia, also traveled in South America, delivering addresses on Pan-Americanism. Delegates from the Boston Chamber of Commerce spent three months in South America, where they were entertained hospitably, returning with sincere regard for the peoples there. Similar tours by other commercial bodies were planned, as the United States trade with Latin America has

[1] In this presentation of the year's events in Latin America, no particular attention is given to the foreign relations of any Republic, nor to the diplomatic intercourse between them and the United States, for a review of which reference should be had to the preceding Department, *International Relations*. In so far as is possible, their internal progress is here reported, and political affairs noted only when they seem to have influenced internal conditions.

increased 183 per cent. in the last 10 years, and better results are probable after the opening of the Panama Canal. In Central America a confederation of the five Republics was discussed with a deepening interest during 1913.

ARGENTINA

During 1912 crop conditions had been excellent. At the beginning of 1913 promises for the year's crops were good, and everything pointed toward increased trade, although 1912 had broken all records. The income for the past 12 months had balanced the expenditure. The Panama Canal and the lower tariff in the United States were expected to stimulate foreign commerce. On Jan. 1, 1913, Buenos Aires reported a population of almost 1,500,000, and the tramways had a length of 695 km. (about 330 miles). It has been a good year for railway development, the lines westward being pushed so that another route across the Andes into Chile, south of the present line to Santiago and Valparaiso, is nearing realization. Rail communication north 934 miles to Asunción (Paraguay) was established on Nov. 17. The Senate passed a law (Aug. 26) for the pensioning of railway employees, although the system has still to be worked out. A subway was projected under the River Plata from Buenos Aires to Colonia (Uruguay), but no active steps were taken. The subway in Buenos Aires itself opened in October. A consolidation of the Great Southern with the Western Railway was approved but the approval was later withdrawn. The Government also rejected the proposal of the Farquhar group to purchase the lines belonging to the Government. In February the Government decided to send students to schools in the United States, as announced at Harvard by Minister Naón; it purchased for $300,000 the legation building in Washington, and appointed Señor Villanueva special envoy to the United States to thank this country for participation in the centennial of 1910. In January Lieutenant Fels of the Argentine Army flew from Buenos Aires to Montevideo, 125 miles, the greatest flight in South America then recorded. In March a meeting was held in Buenos Aires of the governors of the 10 national territories to discuss the progress of the nation. Oil wells in Comodoro Rivadavia produced profitably during the year, and oil was discovered in paying quantities in Salta. In April a scarcity of cattle began to be noticed, after the intense demand for home consumption and export; in May Congress undertook a bill to control the so-called "beef trust" but could accomplish nothing. In June the first Argentine meat arrived in New York, in September larger shipments were undertaken, and by November exports to steamer capacity were announced, stimulated by the new United States tariff. In May fruit, and in October butter from Argentina entered New York, and in October corn entered Galveston; events showing the startling changes in export conditions of the world. On July 4 a statue of George Washington was unveiled in Buenos Aires, and July 17 a Y. W. C. A. building was opened. Floods occurred in Buenos Aires Province in June and August, and wheat was damaged in November, but good crops were reported, 23,000,000 hectares of land being under cultivation. A financial stringency marked the year's end. Argentina has signified official participation in the Panama-Pacific Exposition.

BOLIVIA

The Republic had a good year in 1912. There had been no political disturbance, commercially there was prosperity, and the revenue exceeded the expenditure. Military activity had been popular, to show preparedness for possible trouble with Paraguay, but 1913 opened by a cordial effort to settle its boundary dispute with this neighbor. Plans for Government wireless stations were forwarded, and other evidences of material prosperity were marked. An electric railway was inaugurated in Cochabamba (April) and the railway south toward the Argentine frontier was pushed. To add to the mineral wealth of the country, petroleum was discovered early in the year near

Santa Cruz. On May 12 the centenary of the beginning of printing in Bolivia (then "Alto Peru") was celebrated. The Boston Chamber of Commerce visited La Paz (May 28). In June the American Minister, H. G. Knowles, was sent by the Government to San Francisco to select the site for the Bolivian building at the Exposition in 1915. On May 13 took place the formal opening of the Arica-La Paz Railway, which connects the seaport of Arica in Chile with the capital of Bolivia. It offers the shortest line to the Pacific seaboard and brings the Republic into closer touch with the outer world; during the ceremonies a better sympathy between the two interested nations was manifested. On Aug. 6 Ismael Montes was inaugurated for the second time into the Presidency. During the four years intervening since his earlier administration President Montes had been diplomatic representative to France, and had studied the requirements of his country.

BRAZIL

The year 1912 had been very prosperous and increase of commerce was reported. The death of Barão Rio Branco had left empty the office of Secretary of Foreign Affairs, which was filled by the appointment of Dr. Lauro Müller, whose services during 1913 were of decided value to the nation. Early in the year a bill to revoke the decree of exile against the Braganza (royal) family, was rejected. On Jan. 3 a new tariff law was proposed, and while still under discussion, it tended to influence the customs transactions of the year. On Jan. 22 the battleship *Rio de Janeiro* was launched at Newcastle, of 27,500 tons, one of the largest warships in existence. On Feb. 21 there was approved a plan to reduce the rubber export tax in those states exercising that right; in fact, during 1913 the rubber question became acute in Brazil. An English investigator of rubber conditions on the Amazon reported so strong a contrast with conditions in the Far East that on April 12 a new expedition to the Amazon was undertaken by the Government to improve methods. One of the first steps was to establish rubber factories, in Rio, Minas Geraes and Para, to cost about $1,325,000, in which only Brazil rubber should be used; an experiment station for rubber growing was located at Para, the Federal Government thus coöperating with the state governments. Toward the end of the year a decline in rubber prices gave increased anxiety to the country. On March 7-8 a storm at Rio de Janeiro damaged the new sea wall along the water front. In March an agitation against the increasing cost of living began. As an effort to attract immigrants away from the cities and into country life, the state of Minas Geraes (at Bello Horizonte) increased its agricultural colony and started an immigrants' hotel. In May arrangements were made in the state of São Paulo, by which 20,000 Japanese colonists were to be introduced for rice cultivation. The Japanese Government planned also a steamship route from Japan to Brazil through the Panama Canal. China established a legation in Brazil, in appreciation of the fact that Brazil was the first state to recognize the new Chinese Republic. Dr. Lauro Müller visited the United States from June 6 to July 16, being delegated to return the courtesy of Secretary Root's visit to South America in 1906. He was here June 6 to July 16.

As material improvements should be noted that the first section of the new port works at Rio was inaugurated (May 12), and progress at Pernambuco, Bahia and other ports, was accomplished. In May the number of Marconi wireless stations was increased so as to offer communication from one end of the Republic to the other. On July 1 Greenwich time was recognized by four "watches," the first (extreme east) being 10 A. M. at noon, London, the second 9 A. M., the time at Rio, and the third and fourth to the west. The study and plans of the work against drought in the dry regions advanced, and experts were introduced from the United States (March) to this purpose and to teach the practical application of "dry farming." A new line of steamers was put in operation along the coast from Porto Alegre to Manaos (May), and a railway southeast from Para was

surveyed as a link toward Rio de Janeiro. The railway across the Uruguayan frontier into Rio Grande do Sul was opened. In May a loan of £11,000,000 was made in London through Rothschilds' for port improvements, but capital was shy during the latter part of the year, so that a financial stringency was felt, especially as the balance of trade, for the first one-third of 1913 at least, was against Brazil.

As national elections are to be held in March 1, 1914, in August a parliamentary convention selected Wenceslo Braz and Ruy Barbosa as candidates. Brazil has signified its intention to participate in the Panama-Pacific exposition.

CHILE

In 1912 trade had improved over 1911, and good crops were realized, but the expenditure exceeded the revenue. Nevertheless finances were hopeful, and Government therefore opened 1913 by perfecting the plans for spending $20,000,000 on the ports of Valparaiso and San Antonio, on which work had been inaugurated on Oct. 6, 1912. Altogether another $25,000,000 is to be expended in other port improvements, to place Chile in good condition for its expanding commerce. In April traffic was opened by rail as far south as Puerto Montt; in November rails were joined on the Longitudinal Railway as far north as Iquique, and traffic will be carried early in 1914; thus Chile has about 1,600 miles of north and south railway. In addition to this purely national system, there was opened in the second half of the year the Arica-La Paz Railway, built by Chile with the coöperation of Bolivia. A bill was passed (February) by Congress to electrify the railway connecting Valparaiso and Santiago. Two great investments by U. S. capital marked 1913. The Tafa iron mines were purchased by the Bethlehem Steel Co., which thereby secured a supply of 100,000,000 tons of iron practically in sight; the company expects to put into service 10 steamers from some port in the United States, probably to the port of Cobija, which must be improved for such traffic. The Guggenheim interests obtained control of the Chile Exploration Co. with mines at Chuquicamata, where are 100,000,000 tons of copper ore. Oil was reported (May) discovered near Punta Arenas. For the first half of 1913 the price of nitrates dropped, and the Government ordered an investigation of the cause. A new tariff was proposed (April 28) which increased duties and made them specific instead of ad valorem. One great effect of the tariff would be to depress the importation of lumber and its products from the United States; Chile went no further than the project of the law, however. Punta Arenas lost its character as a free port, and a customhouse was established there. In April the Republic accepted representation in the San Francisco Exposition. On June 3 two Chilean submarines, the *Iquique* and *Antofagasta* were launched at Seattle. The Boston Chamber of Commerce arrived in Valparaiso on June 4. On May 25 the legation building purchased by the Argentine Republic for a permanent home in Santiago was dedicated. On July 19 the British hospital in Valparaiso was inaugurated. The cornerstone of the new National Library in Santiago was laid on Aug. 22. The property of the nation was estimated in 1913 to be worth $280,000,000.

COLOMBIA

The year 1912 passed quietly, but a deficit in the finances was recorded. At the beginning of 1913 the Government ordered six revenue cutters and two launches for its navy. Francisco Urrutia was appointed Minister of Foreign Affairs, considered favorable to the United States, but (Jan. 31) an offer from the United States to settle Panama claims, was refused. This was the subject of a special message to Congress by President Taft on March 1; Colombia preferred, however, to wait for the Wilson administration before entering upon negotiations. On June 24 the Republic proposed a renewal of the discussion through Señor Betancourt, recently appointed Minister to the United States, but no results were attained during the year (see also III, *Interna-*

tional Relations). In May discussion was aroused by the concession granted to Pearson & Son (Lord Cowdray) covering the oil interests in the Republic, on similar lines to a concession given to the same interests in Ecuador (*q. v.*). Along with the right to explore for and to exploit oil discovered, for which a fixed sum annually was to be paid the Government, went the right to begin various undertakings, among which was that to improve harbors and dig canals in the country; a concession of like nature had been requested by the United States toward the end of the Taft administration. Congress met Nov. 30 to settle this concession, but meanwhile it had been withdrawn by Lord Cowdray. In July, Colombia and Peru had trouble about the Putumayo region, claimed by the former although the Indian cruelties had been repudiated by her. In August the National Assembly at Bogota, in joint meeting of Senate and House of Deputies, chose as a candidate for the next President, to be elected in August, 1914, Dr. Jose Vicente Concha; although not an election, this showed the temper of the people to be favorable to conciliation. On Aug. 7 the first wireless message to Colombia was received through the station at Cartagena.

COSTA RICA

The year passed peacefully in the Republic. Financially and commercially conditions were sound, and material improvement was characteristic. Some anti-American sentiment was manifested at times, but was not lasting. In January Senator Root took occasion to deny officially any foundation for an utterance, reputed to him by irresponsible newspapers, that exercise of force toward Central America was necessary. Some feeling was aroused (July 10) by the proposed Nicaragua treaty (*q. v.*) because Costa Rica had not been consulted, although the Republic was touched by the San Juan River, an international boundary within the Nicaraguan canal area, but as the treaty was dropped, no negotiation was necessary (see III, *International Relations*). On Aug. 8 Costa Rica accepted Secretary Bryan's peace plan. The most important enterprise planned industrially was that for the electrification of the Pacific Railway connecting San José and Puntarenas, on the Pacific, a distance of 67 miles. Politically, excitement centered around the campaign for President, which was begun in March. There were three candidates: Iglesias, who had served four years ago; Fernández and Dr. Durán, but all electioneering was conducted in a constitutional manner. No candidate received a majority, so the election devolved upon Congress. Congress in October considered a concession to S. Pearson and Son for the development of oil fields, somewhat similar to those in Ecuador and Colombia (*q. v.*).

CUBA

Commerce during 1912 had been good and the year opened quietly. President-elect Mario G. Menocal sent greetings to the United States on Jan. 1, 1913, but political conditions were clouded by the proposal of President Gómez to liberate many whose so-called crimes had been against the Government, yet the release of whom, as there were many negroes among them, would be a menace to the country. On April 25 a satisfactory Amnesty bill was passed, the course of events being watched closely by the United States (see III, *International Relations*). On Jan. 24 a threat was rumored to annul the election of President Menocal, but nothing resulted. On Feb. 7 the Department of State (U. S.) authorized a suit against Cuba for a libel on the character of Minister Beaupre and Secretary Gibson. On Feb. 9-10 Wm. J. Bryan visited Havana. On April 11 Ceferino Mendez, mayor of Cienfuegos, was assassinated. President Menocal was inaugurated on May 20, and he assumed a firm control of the Government. On June 13 Wm. E. Gonzalez was appointed U. S. Minister to Cuba, and on May 29 Pablo Desvernine y Galdoz, of the University of Cuba, was sent to represent Cuba at Washington. On June 30 President Menocal annulled the contract of the Port Improvements Co., an act which aroused much discussion about concessions and

the relation of this administration to the former. Congress refused on Oct. 21 to convene in extra session to vote a loan, and President Menocal appealed to the people to support him. Materially the country was prosperous; the sugar crop was the largest on record; road construction was carried on throughout the island, and further improvements and public works were authorized, for which loans were before Congress. The United Railways of Havana acquired on Nov. 24 by purchase the Cuba Central Railway.

DOMINICAN REPUBLIC

Trade conditions were good at the beginning of the year with increased customs collections, the receipts for the year being almost $4,000,000. On Jan. 22 a loan of $1,500,000 from local bankers was contracted with the approval of the United States Government. Provisional President, Archbishop Adolfo Nouel, secured peace with the revolutionists active at the end of 1912, and on Jan. 23 a new Cabinet was formed, but on March 9 the President resigned. On April 13 José Bordas Valdez was elected president with the formation of a new Cabinet. On the same day the Dominican Republic accepted Bryan's peace plan. W. W. Russell resigned as Minister from the United States on July 23 and on Aug. 12 James M. Sullivan was confirmed in his place. Walter W. Vick was appointed United States customs receiver of the Dominican Republic. On Sept. 8 a revolution was threatened and U. S. warships were sent to the Island, but a statement was issued to the revolutionists from President Wilson on Aug. 20 that he would not recognize nor turn over to them the customs-house collections, and an end to the lawlessness resulted (see also III, *International Relations*). The commerce of the country remained in excellent condition during the year.

ECUADOR

In December, 1912, Colonel Gorgas visited Ecuador to study sanitary conditions at Guayaquil, and in January, 1913, he made his report to Washington, to the satisfaction of the Ecuador Government; but much antagonism was aroused against interference by the United States. The adjustment of the financial condition of the Guayaquil and Quito Railway was discussed the entire year, although Henry L. Janes of the U. S. Department of State was recalled as arbiter; the new American Minister, Charles S. Hartman, then took it up. Ecuador sent to Washington as Minister Gonzalo S. Córdoba. During May and October there was political unrest, and some trouble with Peru between Indians on the frontier. A notable event was the concession (June 26) to Pearson & Son (Lord Cowdray) for the exploitation of oil in the Republic; this carried great freedom of action for any subsidiary activity, on the annual payment of £100,000. It was closely related to a similar concession in Colombia (*q. v.*). Work on the Ambato-Rio Curaray Railway was continued during the year, under American engineers. On Sept. 26 the President signed a bill for a loan of $10,000,000 for the improvements in Guayaquil, especially for the system of sanitation outlined by Colonel Gorgas.

GUATEMALA

At the beginning of 1913 the Republic held its own in financial matters, although a deficit was reported; commercially the country was prosperous. In January shipments of corn, fruit and flour arrived from Argentina, showing a fresh trade channel. In January the railways of Guatemala were made part of the International Railways of Central America, thus bringing some harmony of relationship into what were hitherto unassociated lines. Toward the middle of April Great Britain demanded a settlement of her debt; an appeal to the United States to mediate was rumored, but interference was refused, as the debt was undeniable (see also III, *International Relations*). A loan from outside sources was not obtainable, but a postponement of settlement was allowed until May 15; meanwhile Great Britain sent a warship to the coast. On May 15 Guatemala agreed to pay (interest payment had

ceased in 1894) and set aside $1.00 of every $1.50 collected on the export tax of coffee. In June Guatemala recognized Huerta as President of Mexico. In July the Government offered five scholarships in national schools to young students of the United States, following President Estrada Cabrera's policy of fostering education. Guatemala accepted Bryan's peace proposal on Sept. 20. By the end of 1913 rail communication was practically established with Mexico City.

HAITI

Until March affairs in the country went on smoothly, but in that month political disturbances arose. On May 2 Gen. Tancrede Auguste, the President, died. Michel Oreste was elected by the Congress on May 4 but further disturbance followed, although a new Cabinet was appointed. Haiti accepted Secretary Bryan's peace plan on June 19. Madison R. Smith was confirmed as Minister to Haiti from the United States, being the first white man to hold that position for several terms. A new currency, with a gold *gourde* of 100 centimes worth 25 cents in United States money, is to be issued on Jan. 1, 1914.

HONDURAS

On March 21 President Manuel Bonilla died, and was immediately succeeded by the Vice-President, Francisco Bertrand, who maintained a steady peace in the Republic. Early in the year, the highway between the Pacific coast and the capital, Tegucigalpa, was so repaired that automobiles were again engaged in carrying traffic over it. To the north coast (Atlantic side), there was a practical promise of accessibility by the continuance of construction on the railway from Trujillo, which was taken in hand by the United Fruit Co. This will open up a rich tropical and subtropical country that offers abundant opportunity for settlement for agricultural enterprises. Honduras accepted Secretary Bryan's peace plan on Nov. 3.

MEXICO

As the year opened there was greater unrest than in the last months of 1912. Foreign residents were not protected against irresponsible attacks and many of them prepared to leave the country. On Jan. 15 the U. S. S. *Denver* was ordered to Acapulco to assist migration, and on Jan. 21 the *Wheeling* to Vera Cruz. The Zapatistas in central Mexico were looting, and in the north President Madero had no support. On Feb. 18, after several days of fierce fighting in the capital, Madero was arrested in Mexico City by General Blanquet, under orders from Gen. Victoriano Huerta acting in concert with General Felix Diaz, recently pardoned after his arrest in Vera Cruz (*A. Y. B.*, 1912, p. 113). Huerta declared himself Provisional President and on Feb. 19 took the oath of office. On Feb. 23, while being removed from the Palace, the deposed President, Madero, and his Vice-President, Pino Suarez, were killed; the exact circumstances were never satisfactorily disclosed, but suspicion attached to Huerta and Diaz as implicated in, if not instigators of, the deed. On Feb. 27 Huerta was proclaimed President, provisional but constitutional.

In the north, Venustiano Carranza, the Governor of Coahuila, immediately revolted as leader of a constitutional party that declared Huerta a traitor, and others of the northern tier of states refused to acknowledge him. On March 1 the Government proposed a loan of 100,000,000 *pesos;* it was hoped to secure the money in Europe if not in the United States. Pascuale Orozco arrived in Mexico City on March 12 declaring for Huerta, thus strengthening the latter so that rail communication from El Paso was established. Late in March, however, Durango revolted, and although Carranza lost Saltillo (March 25), the month ended with no decided gains for Huerta. On April 1 Congress opened; in his first message Huerta accused Madero of having used $13,000,000 improperly. As Mexico ranked fourth among the world's gold producers, an export tax of 10 per cent. was placed on that metal sent abroad.

Great Britain recognized Huerta as President on May 3. France followed on May 13, Germany on June 17, and thereafter Austria, Spain, Switzerland, Russia, Belgium, Italy and Norway. In July, only the United States, Brazil, Chile and Cuba had failed to acknowledge Huerta. He had ordered fresh drafts for the army to begin June 1, with promises to pacify the country; nevertheless Guaymas went to the revolutionists in May. Congress (May 28) approved the suggested loan, but it found no purchasers. A constitutional election for President was set for Oct. 26. During June Durango continued lost to Huerta, but atrocities were numerous in the state, attributed to adherents of Carranza, although undoubtedly bandits were chiefly guilty.

On July 10 Federico Gamboa was appointed Minister of Foreign Affairs on the resignation of de la Barra. The efforts of the American Ambassador, Henry Lane Wilson, to secure from his Government a recognition of Huerta, led to his being called to Washington (July 16) to explain conditions and to give his views in person; he had (July 28) a conference with President Wilson, and was questioned thereafter by the Senate, but was then ordered to refrain from further conversation on all Mexican matters and not to return to Mexico, his retirement from the diplomatic service being set for Oct. 14. To obtain information from fresh sources President Wilson sent to Mexico late in July, John Lind, former Governor of Minnesota, to negotiate, as an independent but authorized representative of the President of the United States but not in the character of a traditional diplomatic officer, with those in control of the Mexican Government. He was received in his private capacity by Huerta and Gamboa. Lind reached Mexico City on Aug. 11 and left it for Vera Cruz on Aug. 26, his errand having been unsuccessful.

On Aug. 27 President Wilson delivered to Congress an address explaining his purpose. Lind's instructions had been to arrange, if possible, for a settlement on these conditions: an immediate cessation of fighting throughout Mexico with an armistice; security given for an early and free election; Huerta to bind himself not to be a candidate for election; the agreement of all parties to abide by the election and to support the new administration. The United States offered its good offices toward the settlement of these plans, but Minister Gamboa rejected them through Mr. Lind. On Aug. 28 President Wilson issued a statement warning all citizens of the United States to leave Mexico. On Aug. 19 the U. S. S. *Nashville* was ordered to Vera Cruz and many Americans were assisted to depart from a fund voted by Congress for that purpose. Huerta subsequently decreed that the usual time limit for warships in foreign waters must be observed.

Felix Diaz was appointed special Ambassador to Japan on July 19, and started thither through the United States and Canada. He had reached Canada when Japan sent word that his presence would not be acceptable. Thereupon Diaz went to Europe, probably to consult with his uncle, Porfirio Diaz. He returned to Havana, and as he had announced himself as a candidate for the presidency, he went (Oct. 22) to Vera Cruz, where he became virtually a prisoner, awaiting orders from Huerta as head of the army.

On October 6 there was a change in the Cabinet, Gamboa going out so that he might be the candidate of the Catholic party for President. Torreon (Coahuila) fell into the Carranzistas' hands on Oct. 8, showing that the revolution in the north was by no means suppressed. In spite of this, it was stated that a loan of 18,000,000 pesos had been secured and the money paid, chiefly from local bankers. Suddenly, on Oct. 9, a *coup d'etat* was effected, led up to by an outspoken attack on Huerta by Senator Belisario Domínguez; 110 members (23 were subsequently released) of the Chamber of Deputies were imprisoned and the Chamber dissolved, Huerta proclaiming that he assumed the functions of Congress and many of the Ministers. President Wilson thereupon sent a note to Huerta stating that the United States would not recognize the results of the election on Oct. 26, as they would be

unconstitutional. On Oct. 20 Ambassador Page in London asked the British Government its construction of its Minister's (Sir Lionel Carden) action in presenting his credentials to Huerta the day after the forcible dissolution of the Mexican Congress; and the reply was that the date had been previously selected and had no intentional relation to that event. Meanwhile British, German and French warships had been gathering in the Gulf of Mexico, as there seemed a necessity to protect the subjects of these nations in case an antiforeign uprising broke out in Mexico. Monterrey fell into the hands of Carranza on Oct. 25. The election (Oct. 26) passed quietly, although no general voting was attempted. On that day Gen. Felix Diaz sent in his resignation from the Army, and Oct. 28 sought safety on a U. S. warship in Vera Cruz harbor.

A new Congress convened on Nov. 20 under Huerta, but no action was taken concerning the election or Huerta's relation to the Government. The *status quo* was preserved during November. It was reported that ex-President Diaz advised Huerta to yield to United States' demands; also that negotiations with Carranza had been opened by President Wilson, but with no open recognition. Mr. Lind went to Tampico late in the month, where the revolutionists were active, and where the oil interests of Pearson & Son were threatened, this company having requested U. S. protection. On Nov. 25 a battle between Federals and revolutionists took place at Juarez, the former being routed with considerable loss. Mr. Lind was recalled to Vera Cruz shortly afterwards, and the year ended with Federal losses. (See also III, *International Relations.*)

In spite of the ravages of the revolution, some progress was made during the year. The cultivation of wheat was encouraged and the crop promised to meet the home demand. The production of oil increased. Railway construction continued to some extent, especially on the line between Vera Cruz and Tampico (national system). The reservoir (4,170 acres) of the Nacaxa electric plant that supplies power to Mexico City, was opened, its construction being called one of the greatest engineering feats of the age. As a whole, however, all industry suffered, and the country was approaching starvation in December. Exchange fell, touching 36 cents at one time, the normal being approximately 50 cents.

NICARAGUA

On Jan. 1, Señor Adolfo Diaz, elected on Nov. 2, 1912, became President of the Republic. His aims were good and progressive, and he has tried seriously to improve the country. The United States marines were withdrawn in February. Emiliano Chamorro was sent as Minister to Washington on Jan. 20. Benjamin L. Jefferson was later sent as U. S. Minister to Nicaragua. On Feb. 10 a new coinage and currency was established, the unit being the *córdoba*, equal to $1.00 gold, with silver and paper of usable denominations; the old *peso*, of which a superabundant issue of paper had been in circulation, was withdrawn on the basis of eight pesos for one córdoba. On Feb. 26 the United States Senate took up the new treaty with Nicaragua, in which was embodied the proposal that the United States secure the exclusive right to a canal across Nicaragua; a loan of $3,000,000, to be part of the treaty obligation, was projected; and another clause proposed the reservation of the Bay of Fonseca as a naval base for the United States (see also III, *International Relations*). Dissatisfaction was expressed in both countries. A state of siege was declared (May 18) after the U. S. S. *Denver* (March 15) had been sent to Corinto to join the *Buffalo*, but no unfortunate accidents resulted. The treaty, however, was not acted upon in the U. S. Senate. On May 11 Pedro R. Cuadro was sent by Nicaragua to Washington as a special representative to explain the plans of his Government and to request a loan of four to five million dollars, proposing to yield the National Railway as security. On July 19 Secretary Bryan sent a new treaty to the Senate, in which was proposed a species of protectorate; the treaty had three clauses similar to the "Platt

Amendment" for Cuba. This aroused criticism in all countries, although it seemed to be favorably received in Nicaragua, and was lost in Senate Committee on Foreign Relations by a vote of 8 to 4 (see also III, *International Relations*). In October arrangements were made with the banking house of Brown Brothers & Co., New York, in association with J. and W. Seligman & Co., that the National Railway of Nicaragua (163 miles) should, by the sale of 51 per cent. of the stock, be turned over to this banking house on payment of a loan, the remaining 49 per cent. of stock to remain with the Government of Nicaragua. This loan was the discounting at par of $1,600,000 one-year Treasury bills of the Republic of Nicaragua, dated Oct. 1, 1913, maturing Oct. 1, 1914, at 6 per cent., secured by a lien on the customs (subject to prior liens), the customs administration to be conducted by an American collector-general recommended by these bankers. It has been shown that the revenues of the Republic have materially increased since the service has been in operation.

PANAMA

The financial condition of the Republic was satisfactory during 1912. In October, 1913, it was compelled to sue in New York on a mortgage for part of the investment of $10,000,000 left on deposit in the United States, this being an act of interest to the banking world. Commercially the year's movement was progressive, although locally in the Zone cities of Panama and Colon decrease was noticed owing to the gradual reduction of the working forces of the Canal. Banana shipments and production increased, and new steamers were engaged for that business, especially to Europe. The United Fruit Co. began to engage employees from the Panama Canal, who make good workmen as their experience in the tropics qualified them for activity on the plantations. Large cocoanut plantations were started on the Colon (Atlantic) side of the Republic, and thus permanent development was assured. The Government decided that the idea of a railway across country between Panama and David was not so favorable as were several north and south lines from the Pacific seaboard into the interior; the earlier project was therefore abandoned, but plans were made for short (electric) railways northward from the available harbors on the Pacific, thus opening regions to commercial settlement while preserving the coast-wise movement which has been a good feature of the Republic. On Sept. 20, Panama accepted Secretary Bryan's peace treaty. An exposition to celebrate the opening of the Panama Canal is expected to be held in 1915 in Panama, and work to that end has been continuous during 1913. An electric trolley service for the city of Panama has been inaugurated. Arrangements were concluded for wireless stations in the Republic. On Nov. 13 the Chinese residents of Panama refused to pay a head tax, and international complications were threatened, but serious consequences were averted.

PARAGUAY

During 1912 (May) political disturbances were overcome, and in 1913 an era of commercial activity began. In January an appointment was made (Dr. Héctor Velásquez) of a Minister to the United States, the first diplomatic representative in eight years. An extradition treaty between the United States and Paraguay was ratified on July 30, thus obliterating the last refuge of criminals. In August the Republic accepted Secretary Bryan's peace plan. Suspicion of Bolivia on account of the Chaco boundary was manifest in the early part of 1913, but a small revolutionary movement was at once quelled. Financially, the debt was reduced and the money placed on a better rating; a loan of £1,200,000 was authorized on March 5. Industrially much energy was shown; wireless stations were equipped in the country, electric tram service in Asunción was inaugurated (July 9), and immense tracts of land were opened to grazing and agriculture. Much of the interest of these advances was due to the visit (June) to Paraguay of Percival Farquhar, of the Brazil Railway and other South American en-

terprises, who controls the Paraguay Central Railway, the Bank of the Republic, and large ranches, and whose plans include an extension of the Brazil Railway eastward from Asunción across the country to the Atlantic Ocean.

PERU

In 1912 trade conditions improved. The inheritance of that year concerning the Putumayo atrocities (*A. Y. B.*, 1912, p. 85) was carried over to 1913. On March 19 the Peruvian Amazon Co. was wound up in London, but the investigation continued, although the atrocities themselves were shown to have practically disappeared. Peru claimed that accounts were exaggerated, and Jose Arana, against whom attacks were chiefly directed, offered himself for trial. Politically, there were Cabinet changes on Feb. 26 and June 17, and a disturbance occurred on July 25 on account of which Ex-President Leguia left the country. On June 23 Ex-President Piérola died, and tributes of sincere regret were expressed both at home and abroad. On April 10 Peru recognized the Chinese Republic. In July Minister Pezet in Washington was sent to San Francisco to select a site for Peru at the Panama-Pacific Exposition. Within the Republic notable events were: an expedition of only ten days' travel from Lima to Iquitos, on the Amazon, demonstrating that a commercial route between the Pacific and Atlantic was practicable; the establishment of wireless communication for general service between these two points, which had hitherto defied regular connection; the opening of nine wireless stations to service; and the encouragements given to plans to extend the railway (already operating from Callao to Cerro de Pasco) down the eastern slope of the Andes to the Ucayali River. The Peru Steamship Co. discontinued its service southward to Chile, thus concentrating its activity to the run between Panama and national ports. On May 10 the Boston Chamber of Commerce arrived at Lima. An international medical congress was held in Lima during November.

SALVADOR

On Feb. 5, President Manuel E. Araujo was assassinated, just as he had completed plans for opening many public works on March 1. Martial law was declared and the murderer executed. The suspicion of Guatemala's instigation of the plot was unfounded. Araujo was succeeded by Vice-President Carlos Melendez, who continued his predecessor's policy of progress. A manifestation of this was the contract given on May 21 to Pearson and Sons for the sanitation and paving of the city of San Salvador, to be completed in three years at the cost of about $6,250,000. On Aug. 1 an express service between New York and San Salvador began. Commercially and industrially the country was prosperous, but the coffee crop was short. On May 17 Salvador protested against the proposed treaty between the United States and Nicaragua whereby the United States was to secure from the latter (besides the control of a canal across the Republic) the Bay of Fonseca, Salvador claiming that as the Bay of Fonseca was partly waters of Salvador, Nicaragua had no right to cede such permission (see also *Nicaragua, supra*, and III, *International Relations*). Salvador on Aug. 7 accepted Secretary Bryan's peace plan. The Banco Nacional (not the Government's national bank) suspended payment on Nov. 14, but financial conditions remained excellent.

URUGUAY

The Republic had been peaceful during 1912, revenue increasing as commerce increased for that year. On June 8 Uruguay agreed to Secretary Bryan's peace plan. A radical proposal of the President, which received some attention from Congress, was that the nation should be governed by a commission of nine members, doing away with a President and Cabinet. This evoked much discussion at home and abroad. An unfortunate disagreement between the Government and certain contractors for public works led to the "Rambla Sud" affair, in which the British Minister, although innocent of wrong, was involved and

threatened suit against Uruguan officials. The delay in preparing an acceptable budget led to a depression in the financial condition of the Republic. In June an attempt was made to effect a loan of £2,000,000, but there was difficulty in placing it, and investors in general failed to accept it. Financially, therefore, the nation was on an insecure footing at the end of the year. Industrially and commercially, however, prosperity continued, the wool crop being the largest recorded. Early in the year rail connection across the frontier was established between Uruguay and Brazil (Rio Grande do Sul), so that a through schedule was put into operation between Montevideo and Porto Alegre. Improvements of the port works of Montevideo progressed steadily, large steamers now coming to the docks and unloading with moderate expedition. The Pan-American Railway was extended, although construction was interrupted at times. Oil was reported at Melo. An American packing plant was established on the Uruguay River.

VENEZUELA

During 1912 peace prevailed, and the country was prosperous. Trade increased noticeably, and the revenue balanced expenditure. On Jan. 5 a new Cabinet was formed, strengthening the Government. On Jan. 15 ex-President Castro was denied admittance to the United States at New York but after extended arguments he was admitted on Feb. 15. After a brief stay, he went to Cuba, returning to Washington in time to attend the inauguration of President Wilson. There was a slight uprising in Venezuela on Feb. 28, said to have been due to Castro. On May 25 several officials fled the capital, and on June 7 another Cabinet was appointed. Another uprising was reported on Aug. 1 to have broken out at Coro. President Gómez himself led the army to its suppression. Diplomatic relations between Venezuela and France were restored, the French representative coming to Caracas on Feb. 12. On June 2 Elliott Northcote resigned as Minister to Venezuela and was succeeded by Preston McGoodwin. The final payments of the emergency debts to Great Britain and France having been made, the Government decided to continue the extra taxes whereby these debts were met, and the money thus retained within the nation was applied to public improvements. One great gain was the construction of good roads in various parts of the country, the old highway between La Guayra and Caracas being rebuilt, and roads leading from the capital being extended. Caracas itself has been supplied with many miles of good pavement, so that automobiles are becoming quite common. A national money order service was inaugurated on Jan. 1. The Government has promised participation in the Panama-Pacific Exposition.

CANADA

ERNEST H. GODFREY

During the year public attention was largely directed to the Navy bill. Owing to the protracted debates on this measure the parliamentary session did not end until June 6. On April 23 new rules of the House of Commons were adopted under which a form of closure of debate became applicable for the first time in Canada. The general financial stringency made itself felt somewhat in Canada, but an excellent grain harvest did much to relieve the situation. The increasing cost of living and the effect in Canada of the new tariff of the United States have also been subjects of widespread interest. A commission to inquire into the high cost of living was appointed on Dec. 18. It consists of John McDougald, commissioner of Agriculture, and R. H. Coats, editor of the *Labour Gazette*.

Naval Policy.—The earlier history of this question having been described last year (*A. Y. B.*, 1912, pp. 121-123), it only remains to state that the amendment of Sir Wilfrid Laurier to the naval proposals of the Government continued to be the subject of prolonged debate when the

House of Commons reassembled on Jan. 14. Persistent obstruction on the part of the Opposition, accompanied by all-night sittings and parliamentary scenes, created a deadlock which was only ended by the adoption on April 23 of new rules of debate proposed by the Government. The motion for the third reading of the Naval bill was passed on May 15 by 101 votes to 68. In the Senate, however, where the Liberal party still commands a majority of votes, the following amendment by the leader of the Opposition, Sir George Ross, to the motion for the second reading of the bill was carried by 51 votes to 27 on May 29: "This House is not justified in giving its assent to the bill until it is submitted to the judgment of the country." The bill consequently failed of enactment.

Railway Construction.—According to the official railway statistics of the Department of Railways and Canals for the year ended June 30, 1913, the total railway mileage of the Dominion was 29,336, an increase of 2,607 miles over the previous year. During the same year $100,483,633 was added to the capital liability of the railways, bringing the total up to $1,531,830,692, of which $755,316,516 was represented by stocks, $163,257,224 by consolidated debenture stock and $613,256,952 by bonds. Good progress has been made with the construction of the new National Transcontinental line; on the main line of the eastern portion between Moncton, N. B., and Winnipeg the total mileage of rails laid to date is 1,822. On the Hudson Bay line, now under construction for the Dominion Government, 82 miles of steel have been laid and 130 miles have been graded ready for track-laying.

Population.—According to the corrected returns of the census the total population on June 1, 1911, was 7,206,643, representing an increase of 1,835,328 since the previous census of April 1, 1901. For the period covered, the rate of increase, 34.17 per cent., is the largest in the world and is due to the heavy tide of immigration which set in with the beginning of the present century. The following table shows the population of Canada by provinces and territories for each of the five decennial censuses since Confederation:

Provinces	1871	1881	1891	1901	1911
Alberta	.....	.....	.....	73,022	374,663
British Columbia	36,247	49,459	98,173	178,657	392,480
Manitoba	25,228	62,260	152,506	255,211	455,614
New Brunswick	285,594	321,233	321,263	331,120	351,889
Nova Scotia	387,800	440,572	450,396	459,574	492,338
Ontario	1,620,851	1,926,922	2,114,321	2,182,947	2,523,274
Prince Edward Island	94,021	108,891	109,078	103,259	93,728
Quebec	1,191,516	1,359,027	1,488,535	1,648,898	2,003,232
Saskatchewan	.....	.....	.....	91,279	492,432
Yukon	.....	.....	.....	27,219	8,512
Northwest Territories	48,000	56,446	98,967	20,129	18,481
Total	3,689,257	4,324,810	4,833,239	5,371,315	7,206,643

One of the most striking facts revealed by the census is the large increase in the urban population of Canada. Thus, whilst during the decade 1901 to 1911 the rural population increased by 576,163, or 17.20 per cent., the increase in the urban population was 1,259,165, or 62.28 per cent. There are now four Canadian cities with an aggregate population exceeding 100,000, as compared with only two in 1901; these are Montreal, 470,480; Toronto, 376,538; Winnipeg, 136,035; and Vancouver, 100,401. Of the total population in 1911 the persons of British origin, numbering 3,896,985, constituted 54 per cent. as compared with 57 per cent. in 1901. The French numbered 2,054,890, or 28.5 per cent., of the total; so that together the British and the French numbered 5,951,975, or 82.5 per cent. of the total, thus leaving 17.5 per cent. as the proportion for all other races. The number of Jews in Canada has increased from 16,131 in 1901 to 75,681 in 1911.

Immigration.—Each of the past three years has constituted a record as regards the number of immigrants. In the fiscal year ended March 31, 1913, the total arrivals numbered 402,232, of whom 150,542 were from the United Kingdom, 139,009 from the United States and 112,681 from other countries, the proportion of British and American immigrants being 72 per cent. of the total. For the first 11 months of the calendar year 1913 the total number of immigrants was 409,248, of whom 155,128 came from the United Kingdom, 111,483 from the United States and 142,637 from other countries. The total for the calendar year is estimated at 418,000.

Agriculture.—In Ontario, Quebec and the Maritime Provinces agricultural crops suffered considerably from drought; but in the western provinces, where the bulk of the grain crops is produced, an excellent harvest has been realized. Weather conditions throughout the ripening, harvesting and threshing periods were ideal; consequently the grain crops escaped the dangers of frost and wet, and, as a rule, good yields of excellent grade were everywhere secured. The following is an estimate of the yield in thousands of bushels (or tons) of the principal field crops in the Dominion for 1913 compared with 1912:

Crop	1913	1912
	(000 omitted)	(000 omitted)
Wheat (bu.)	207,575	199,236
Oats (bu.)	391,418	361,733
Rye (bu.)	2,559	2,594
Barley (bu.)	44,348	44,014
Flaxseed (bu.)	14,912	21,681
Corn (bu.)	14,086	16,570
Potatoes (bu.)	76,720	81,343
Turnips and other roots (bu.)	73,090	87,505
Hay and clover (tons)	10,050	11,189

Note.—The above quantities are expressed as bushels of weight: 60 lbs. wheat, potatoes, turnips, etc.; 56 lbs. rye, flaxseed and corn; 48 lbs. barley; 34 lbs. oats; tons of 2,000 lbs. hay and clover.

Never in the history of the grain trade has there been so rapid a marketing of grain products, and the records show that up to Nov. 21 the total quantity of grain inspected was 128,743,975 bu., compared with 76,846,075 bu. in 1912, an increase of 51,797,900 bu. As was to be expected the passing of the Underwood tariff has had an immediate effect upon the Canadian trade in farm products. Large numbers of young Canadian cattle have been purchased by American buyers, with the result that a scarcity of beef, with consequent high prices, is apprehended. The abolition of the duty on wool appears likely to have an important effect upon the raising of sheep in the Dominion—a branch of the live stock industry which has hitherto been comparatively neglected. The following are the latest available estimates of the numbers of live stock in Canada for 1913 compared with 1912 and 1911:

	1913	1912	1911
Horses	2,535,800	2,378,204	2,306,444
Cattle	6,831,800	6,596,860	6,699,391
Sheep	2,141,000	2,084,594	2,178,722
Swine	3,072,600	3,153,680	3,332,719

External Trade.—The value of the aggregate trade of Canada for the fiscal year ended March 31, 1913, made a record of $1,085,264,449 and for the first time exceeded one billion dollars. Total imports amounted in value to $692,032,392 and total exports to $393,232,057. The value of imports entered for home consumption (exclusive of coin and bullion) for the same period was $670,089,066, including $138,741,075 from the United Kingdom, $435,783,343 from the United States and $95,564,648 from countries other than these, whilst the exports of Canadian produce were $355,754,600, including $170,161,903 to the United Kingdom, $139,725,953 to the United States and $45,866,744 to countries other than these. The trade of the Dominion has increased in value to nearly three times what it was in 1900, the increase more exactly representing 184 per cent., while during the last five years the increase has been from $571,268,767 (1908-09) to $1,085,264,449 (1912-13), or in the ratio of 90 per cent. For the ten months ended Oct. 31 the value of the total external trade of Canada reached $926,366,204, imports

for home consumption being $568,647,488 and exports of Canadian produce $357,718,716. Of the total volume $520,295,650 represents trade with the United States, including $370,278,278 imports and $150,017,352 exports.

Canadian Trade with the West Indies.—By the West Indian Trade Agreement Act (Ch. 56), which went into force on June 2, effect was given on the part of Canada to a trade agreement with the British West Indian Colonies of Trinidad, British Guiana, Barbados, St. Lucia, St. Vincent, Antigua, St. Kitts, Dominica, Montserrat and Grenada, the last named having been admitted to the advantages of the Act by proclamation in the *Canada Gazette* of May 24. The chief provisions of this agreement, now operative, are as follows:

(1) That the duties of customs on goods enumerated in Schedule A, being the produce or manufacture of Canada imported into the West Indian Colonies represented, shall not at any time be more than four-fifths of the duties imposed in the colony on similar goods when imported from any foreign country, provided that on flour the preference in favour of Canada shall not at any time be less than 12 cents per 100 lbs.

(2) That the duties of customs on goods enumerated in Schedule B, being the produce or manufacture of any of the colonies represented, imported into Canada shall not at any time be more than four-fifths of the duties imposed on similar goods when imported from any foreign country, provided that on raw sugar not above No. 16 Dutch Standard in colour, and molasses testing over 56 deg. and not over 75 deg. by the polariscope, the preference in favour of the colony shall not at any time be less than 4½ cents per 100 lbs., and for each additional degree over 75 deg., the preference shall not be less than one-half cent per 100 lbs.

(3) That on goods enumerated in Schedule C, viz., cocoa beans, limes and lime juice, imported into Canada from the colonies represented, there shall be no duties of customs; but certain specific duties are to be imposed thereon when imported from any foreign country.

The Bahamas, Bermuda, British Honduras, Grenada, Jamaica and Newfoundland are to enjoy the benefits of the concessions granted by Canada under the agreement for a period of three years, at the end of which period the concessions may cease as respects any of such colonies which shall not have granted to Canada the advantages above set forth.

Revenue and Expenditure.—For the year ended March 31, 1913, the public revenue reached the total of $168,689,903, again the highest on record in Canada. The expenditure was $112,059,537, leaving a surplus of $56,630,366. Substantial surpluses have been realized during each of the last four years and have been sufficient to provide not only for ordinary capital expenditures but also for the application of considerable sums toward the construction of the National Transcontinental Railway.

Legislation.—The second session of the twelfth Parliament of Canada, held at Ottawa from Nov. 21, 1912, to June 6, 1913, resulted in the passing of 57 public general and 152 private and local acts. Of the public acts the chief subjects dealt with comprised aid to agriculture (Ch. 5), banks and banking (Ch. 9), wireless telegraphy (Chs. 43 and 52), a treaty with Japan (Ch. 27), a trade agreement with the West Indies (Ch. 56) and the establishment of a parcel post (Ch. 35).

The Agricultural Instruction Act (Ch. 5) repeals Chapter 3 of the previous session (*A. Y. B.*, 1912, p. 125), and provides for the appropriation of a sum of $10,000,000 during the next ten years for the purpose of aiding and advancing the farming industry by instruction in agriculture, including the work carried on by the veterinary colleges.

The Bank Act (Ch. 9), which came into force on July 1, 1913, repeals previous Bank Acts, and renews the charters of the 24 Canadian banks for a further period of ten years expiring on July 1, 1923. It lays down in 160 sections legislative provisions for their future control and regulation, the principal changes thus effected in the law of banking being as follows: (1) making more secure for all interests affected the obtaining of a certificate to carry on the business of banking; (2) making it obligatory to have a shareholders' audit; (3) provision for the granting of loans to farmers on the security of their grain; (4) returns to be made by banks as to interest and discount rates charged; (5) central reserves, deposits to be made by the banks in the reserves of gold or Dominion

notes. Against these deposits the bank may issue its own notes. Gold reserves will be under the control of trustees, three to be appointed by the Bankers' Association, with the approval of the Minister of Finance, and one by the Minister of Finance. Inspections of the gold coin and notes held by the trustees are to be made at least twice in each year.

The Radiotelegraph Act (Ch. 43) provides for the licensing by the Minister of the Naval Service of all radiotelegraph stations and apparatus in Canada or on board ships registered in Canada. By this Act, after Jan. 1, 1914, and, subject to certain conditions as to the number of persons a vessel is licensed to carry and the length of its voyage and certain exceptions in the case of inland waters, no passenger steamer, whether registered in Canada or not, may leave any Canadian port unless equipped with an efficient radiotelegraphic apparatus in good working order capable of transmitting and receiving messages over a distance of at least 100 nautical miles by night and day and in charge of a fully qualified person. Ships leaving or attempting to leave Canadian ports contrary to these provisions are made liable to a fine not exceeding $1,000 and costs. The Ocean Telegraph Act (Ch. 52) confirms an agreement dated April 28, 1913, made between the Postmaster-General and the Universal Radio Syndicate, Ltd., for telegraphic communication between Great Britain, Canada, Australia and New Zealand by the Poulsen wireless system. Under this agreement, which is for a period of five years, the rates for messages between Montreal and the United Kingdom are fixed at not more than 4d. per word for messages in plain language not deferred, 8d. per word for code messages, 2½d. per word for Government messages and 3d. per word for press messages.

On July 17, 1913, the period of two years during which a customs tariff with Japan was continued in force pending the negotiation of a new commercial treaty between Canada and Japan was due to expire (*A. Y. B.*, 1911, p. 127), and on April 10, 1913, the Japanese Treaty Act (Ch. 27) was assented to. Under this Act the treaty of April 3, 1911, between the United Kingdom and Japan was sanctioned and declared to have the force of law in Canada, subject to two provisos: (1) that the treaty or act should not repeal or affect any of the provisions of the Immigration Act under which Japanese immigration into Canada is restricted; and (2) that Article VIII of the treaty relating to the products of the United Kingdom and Japan respectively should be deemed not to apply to Canada. The Parcel Post Act (Ch. 35) provides for the establishment of a parcel post in Canada for the conveyance of parcels of all kinds, including farm and dairy products. It will come into operation about Feb. 1, 1914.

EUROPE, ASIA, AND AFRICA.

FRANCIS G. WICKWARE

THE BRITISH EMPIRE

THE UNITED KINGDOM

The Home Rule Bill.—On the assembly of Parliament after the Christmas recess on Dec. 30, 1912, the consideration on report of the bill granting home rule to Ireland (*A. Y. B.*, 1912, p. 126-7) was begun in the House of Commons. During the report stage, which was concluded by liberal use of the closure on Jan. 13, a clause was added to the bill providing that in the interest of the minorities in those constituencies returning three or more members to the lower house of the Irish Parliament the election should be held on the principle of proportional representation and each elector should have one transferable vote. After two days of impressive debate, in which the coercion of Ulster was the chief issue, the motion for the third reading was passed on Jan. 16 by a vote of 367 to 257. The bill was sent immediately to the House of Lords and the same night

was read a first time to five members of the upper chamber. Debate on the motion for second reading was begun on Jan. 27 and on the 30th the bill was rejected by a vote of 326 to 69.

The Parliament Act of 1911 provides that a measure passed by the House of Commons in identical form in three successive sessions shall become law notwithstanding its rejection or amendment by the House of Lords (*A. Y. B.*, 1911, p. 128). The Government accordingly reintroduced the Home Rule bill in the new session in May, thus bringing the Parliament Act into operation for the first time. The debate on the second reading, agreed to on June 10 by a vote of 368 to 270, dealt wholly with the problem of Ulster. Mr. Asquith admitted the serious nature of the situation but rejected all suggestion of compromise. Sir Edward Carson declared that Ulster had the whole force of the Unionist party behind her determination to resort to arms if necessary to resist the authority of an Irish Parliament; thenceforth, he promised, the Opposition would no longer attempt to obstruct the passage of the bill; their duty was now to help the people of Ulster to organize and to ask the people of Great Britain to organize for their assistance. The bill was read a third time on July 7 and passed by 352 to 243. On Lord Landsdowne's resolution declining to proceed with the consideration of the bill until it had been submitted to the judgment of the country, the House of Lords rejected the measure a second time on July 15 by a vote of 302 to 64.

In Ulster in the meantime the training of an effective military force was going quietly forward. By the end of July a volunteer army of over 60,000 men had been recruited from the Unionist clubs and Orange lodges and another 100,000 were submitting themselves to semi-military drill and discipline. Arms were being imported into Ulster in large quantities and the organization of service corps and a general staff was in progress. The Ulster Unionist Council in a conference attended by 500 delegates at Belfast on Sept. 24 completed the organization of a provisional government to be set up in Ulster in the event of the passage of the Home Rule bill. The conference delegated all powers as a central authority to the executive committee of the Council; subsidiary to the central authority it appointed a military council and six committees, on Ulster volunteers, law, finance, publications, education, and customs, excise and post office. The conference decided further on the creation of an indemnity guarantee fund of at least £1,000,000 to indemnify members of the Ulster Volunteer Force against personal injury or loss of life in the execution of orders of the provisional government.

With the progress of these active preparations for resistance the Irish question entered a new and more disquieting phase. The Government, no longer able to depreciate the serious intent of the people of Ulster, was besieged with suggestions of compromise and conciliation. An influential plea for an interparty conference on the Irish question was made by Lord Loreburn, a Liberal peer formerly Lord Chancellor in the present Government, in a letter published in the London *Times* of Sept. 11. Mr. Asquith on Oct. 25 refused to accept the suggestion of a formal conference but agred to consider an informal exchange of views without prejudice. Mr. Bonar Law, while declaring that the situation demanded a general election, on Oct. 29 accepted Mr. Asquith's invitation for an exchange of views. During the last weeks of the year some further progress was made toward clearing the way for a conference but without definite result. The last significant event of the year was the issue of proclamations prohibiting the importation into Ireland or the coastwise carriage of military arms and ammunition.

The Welsh Church Bill.—The bill for the disestablishment and partial disendowment of the Church of England in Wales (*A. Y. B.*, 1912, p. 127) was passed by the House of Commons on Feb. 5 by a vote of 347 to 240. Like the Home Rule bill, it was thrown out by the House of Lords on second reading on Feb. 13 by a vote of 252 to 51. The bill was introduced a second time under the Parliament Act in May and was

passed on third reading in the House of Commons on July 8 by a vote of 347 to 244. The House of Lords, following its procedure in the second rejection of the Home Rule bill, declined on July 22 by a vote of 242 to 48 to proceed with the consideration of the bill until it had been submitted to the country.

The Franchise Bill and Woman Suffrage.—The Franchise and Registration bill, designed to abolish plural voting and to simplify the system of registration for Parliamentary electors (*A. Y. B.*, 1912, p. 127), reached the committee stage on Jan. 23. There were then pending four amendments opening the franchise to women, of different degrees of comprehensiveness, to which Mr. Asquith proposed to give precedence in the debate in redemption of a pledge to allow woman suffrage to be taken up in connection with the Franchise bill as an open question. An amendment proposed by Sir Edward Grey was accordingly moved on the 24th. The same day the Speaker informed the Cabinet that if any of the definite woman suffrage amendments were embodied in the bill, he would be compelled to rule at the proper time that the principle of the bill had been changed and that it would be out of order to proceed with it. In view of this ruling the Government withdrew the Franchise bill on the 27th, and offered a new pledge to the woman suffragists that a private bill for the extension of the franchise to women would be given in the next session the facilities of a Government measure.

Incensed at this "betrayal," the militant suffragists resumed on more violent lines their campaign of terrorism. The milder tactics of window smashing and destruction of mail were abandoned for the more vigorous measures of arson and the bomb. On Feb. 19 an attempt was made to blow up Lloyd George's residence at Walton Heath. The actual perpetrators were not discovered, but as Mrs. Pankhurst publicly accepted responsibility for the outrage, she was arrested on Feb. 24, charged with procuring and inciting persons to commit offenses contrary to the Malicious Damages to Property Act. She was convicted by a jury on April 3 and sentenced to three years' penal servitude.

On entering prison Mrs. Pankhurst immediately resorted to the "hunger strike." Hitherto the Government had made futile efforts to cope with this expedient for evading punishment. Scores of suffragist "hunger strikers" had been liberated on medical grounds before their sentences had expired. Late in March Mr. McKenna, the Home Secretary, introduced a bill, popularly known as the "Cat and Mouse Act," providing for the temporary and conditional release of prisoners in a condition of ill health caused by their own conduct in prison, with suspension of the currency of sentences during the periods of release, the prisoners being subject to rearrest without warrant for failure to observe the conditions of their release or to return to prison on the expiry of their license.

The result of this Act, which was passed in April, has been to cause a noticeable decline in the strength of the militant movement. Mrs. Pankhurst has been released and rearrested several times under its terms, visiting the United States during one of her periods of freedom. Few of her followers, however, have cared to face the rigors of repeated hunger strikes and during the last months of the year the convictions of suffragists for outrages on property have been comparatively few.

While the "Cat and Mouse Act" was pending in the House of Lords the Government redeemed its latest pledge by permitting the introduction and debate of the private Dickinson bill for the enfranchisement of all women over 25 years of age entitled to be registered in respect of the household qualification applying to male suffrage and all wives of men possessing the household qualification. The House of Commons rejected the Dickinson bill on May 6 by a vote of 266 to 219 and thus disposed of the possibility of woman-suffrage legislation during the lifetime of the present Parliament.

The Railways and Trade Union Acts.—Parliament was prorogued on March 7. In the closing days of the session two minor items of the Government's programme were enacted.

The Railways bill, approved by the House of Commons on March 6 as amended by the Lords, was a tardy fulfilment of a pledge given by the Government during the negotiations for the settlement of the railway strike in August, 1911 (*A. Y. B.*, 1911, pp. 132-3), that the railway companies should be enabled to raise their rates in order to meet the increased burden thrown upon them by the improvement of the conditions of labor. The Act does not alter in any way the maximum rates prescribed by law but facilitates the raising of rates within the existing maxima. The railways increased their rates on merchandise under the act on July 1 by an average of four per cent. The Trade Unions Act, approved by the Lords on March 7, was a partial victory for the Labor party in the long fight for a reversal of the famous "Osborne judgment," which denied to trade unions the right to use their funds for political purposes. The Act authorizes a trade union to apply its funds to political ends with the approval of a majority of the members of the organization voting on a special resolution submitted for that purpose.

The New Session.—A new session of Parliament was opened on March 10 after a two-day recess. The legislation forecasted in the speech from the Throne included a measure to facilitate land purchase in Ireland, a loan to the Soudan for the development of cotton culture, a bill to abolish plural voting, and proposals for dealing with the mentally defective, for the restriction of child labor, and for the development of a national system of education. A bill to abolish plural voting, one of the reforms contemplated in the Franchise bill withdrawn in January, was passed by the House of Commons on July 14; it was rejected by the House of Lords on July 24, the upper chamber declining to accept a bill dealing with plural voting without attempting to remove the serious imperfections of the electoral law. The second rejection of the House Rule and Welsh Church bills was the most interesting feature of the session (see *supra*).

Finance.—During the fiscal year ended March 31, 1913, revenue amounted to £188,802,000 and expenditure to £191,556,000. Lloyd George's fourth budget, presented on April 22, estimated the revenue for 1913-14 at £195,825,000 and the expenditure at £195,640,000, leaving an estimated surplus of £185,000. No change was proposed in taxation, which was expected to provide £160,000,000. Of the expenditure the navy estimates accounted for £46,309,300 and the army estimates for £28,220,000.

Naval Programme.—The naval estimates for 1913-14, were introduced by Winston Churchill on March 26. They called for an expenditure of £46,309,300, an increase over the preceding year of £1,233,900. The programme provided for an increase of 8,500 in personnel and the construction of five battleships, to meet the accelerated increase in the German navy authorized in 1912 (*A. Y. B.*, 1912, p. 136), eight light cruisers, 16 destroyers and a number of subsidiary craft. Mr. Churchill reiterated the determination of the British Government to maintain the 16 to 10 ratio against the next strongest Power, but referred to the competition in naval armaments as "one of the most stupid and unnatural chapters in the whole history of European civilization." He proposed that all countries should by common consent take a holiday of a year in naval construction in 1914 or 1915, and repeated the proposal with a specific offer to Germany in a speech at Manchester on Oct. 18 (see III, *International Relations*). After the defeat of the Canadian Naval bill in May, which deprived the British Government of the expected contribution of three battleships (see *Canada, supra*), the building programme was accelerated by the laying down of three ships six months in advance of schedule.

Commerce.—The increase in the foreign trade of the United Kingdom which has been in progress since 1908 continued at an accelerated rate during 1912, the total reaching the new high record of £1,344,168,421, compared with £1,237,035,954 in 1911 and £1,212,402,841 in 1910. Imports were valued at £744,896,514, an increase over the preceding year of £64,738,987 or 9.5 per cent., largely

in raw materials. Exports of British goods totalled in value £487,434,002, an increase of £33,314,704, or 7.3 per cent., more than two-thirds of which was in manufactured articles. Reëxports of foreign and colonial products increased by £9,078,771, or 8.8 per cent., to £111,837,905. During the first six months of 1913, imports were valued at £378,760,000, and exports at £257,056,000, compared with £353,995,000 and £225,313,000 during the same period of 1912, increases of 7 and 13.7 per cent. respectively.

The Marconi Inquiry.—A select committee of the House of Commons appointed in October, 1912, to investigate the contract of the Marconi Wireless Telegraph Co. for the erection of wireless stations in the Imperial system (*A. Y. B.*, 1912, p. 128) uncovered in March sensational evidence of speculation in the shares of subsidiary companies by Cabinet Ministers during the progress of the negotiations. The appointment of the committee on inquiry was the outcome of veiled newspaper charges that the Government had been influenced to enter into a disadvantageous contract by Ministers financially interested in the British Marconi company. All the charges unmistakably pointed to Sir Rufus Isaacs, the Attorney-General, whose brother, Godfrey Isaacs, was the managing director of the Marconi company. Sir Rufus Isaacs denied in the House of Commons that he had speculated in Marconi shares and his statement was accepted in good faith as covering the whole ground. It transpired during the course of the inquiry, however, that Sir Rufus Isaacs had in fact purchased from another brother, Harry Isaacs, who had no connection with the British company, 10,000 shares in the American Marconi company, though subsequent to the conclusion of the contract with the British company, and had later disposed of a part of his holdings to Mr. Lloyd George and Lord Murray of Elibank, the chief Liberal whip. Sir Rufus Isaacs explained that his former statement had referred only to the shares of the British company. Further disclosures in May proved the Master of Elibank to have invested the funds of the Liberal party in American Marconi stock. The report of the select committee, published on June 13, found that there was no ground in any of these transactions for a charge of corruption or unfaithfulness to public duty, or for any reflection on the honor of the Ministers concerned, since the American company was, as the Ministers understood, entirely independent of the British company and had no interest, direct or indirect, in the contract of the latter with the British Government. In a debate on the report in the House of Commons on June 18 Sir Rufus Isaacs and Mr. Lloyd George frankly conceded that their dealings in Marconi shares and their failure to make a full explanation to Parliament when the question was first raised were errors of judgment. A resolution of vindication moved in amendment to an Opposition motion of qualified censure was adopted on the following day by a vote of 346 to 268.

During the progress of the inquiry, the Marconi company, in February, repudiated its agreement with the Government. A special committee appointed by the Postmaster-General to investigate the existing systems of wireless telegraphy reported on May 1 that the Marconi system was the only one capable of fulfilling the requirements of the Imperial wireless chain. A new contract was accordingly negotiated with the Marconi company in June along lines substantially similar to the earlier agreement, but with the 10 per cent. royalty distributed over four parts of the apparatus, so that any part can be discarded by the Government at any time. The contract was approved by the House of Commons on Aug. 8.

The Lord Chief Justice.—Lord Alvestone, Lord Chief Justice of England since 1900, resigned for reasons of health early in October. Sir Rufus Isaacs, the Attorney-General, was appointed to succeed him on October 19, Sir John Simon, Solicitor-General, was appointed Attorney-General with a seat in the Cabinet, and his place was filled by the appointment of S. O. Buckmaster as Solicitor-General.

National Insurance.—Medical benefit under the National Insurance Act

went into effect on Jan. 15 with adequate panels of doctors in every district except certain sections of London. The opposition of the British Medical Association to the terms offered by Lloyd George was completely defeated by the defections in progress at the end of 1912 (*A. Y. B.*, 1912, p. 129), and on Jan. 18 the members of the Association were released from their pledge not to accept service under the Act. On Feb. 7 Lloyd George announced that 14,000,000 persons were insured and contributing under the Act, 5,000 were in tuberculosis sanatoria, and 15,000 doctors had joined the panels.

The Liberal Land Policy.—The long-expected Liberal campaign for land reform was opened by Lloyd George at Bolton on Oct. 11 in a speech reviewing the drawbacks of rural life in England as disclosed by the report of an investigation by a special committee of the party (*The Land: Report of the Land Inquiry Committee*, published by Hodder and Stoughton). The report treated as subsidiary the important question of the rehabilitation of agriculture as an industry, and concentrated attention on the condition of the agricultural laborer, arising from monopolistic holding of land by large owners. The chief evils to be corrected, according to the report, were inadequate wages, bad housing, insecurity of tenure, and the system of game preservation. The Liberal programme, announced by Lloyd George at Swindon on Oct. 22, followed closely the recommendations of the report. The Government proposes to create a new Ministry of Lands to which is to be assigned all the existing functions of the Board of Agriculture, the administration of the law affecting settled estates, the machinery of valuation, and the registration of titles and land transfer. Besides, the Ministry of Lands is to exercise, through commissions of a judicial character, control and supervision of the land generally, including small holdings, land purchase, disputes between landlord and tenant, reclamation of waste land, afforestation, and development of uncultivated land. The commissioners are to be empowered to award full compensation and exemplary damages in cases of "capricious" eviction; in case of sale to award compensation to the tenant for improvements and for disturbance; to fix and revise rents; to grant reductions of rent to permit farmers to pay their laborers a minimum living wage to be fixed by the State; to establish reasonable hours of labor; to fix the price of land in condemnation proceedings; and to acquire uncultivated land and to afforest, reclaim or equip it with a view to cultivation. Houses for agricultural laborers, the number of which required is estimated at 120,000, are to be provided by the Government out of the reserve fund under the National Insurance Act; each house is to have a garden sufficient to supply the occupier with vegetables all the year round and for the whole an economic rent is to be charged. The Liberal programme contemplated also amendments to the law of game preservation, to protect tenant occupiers against destruction of crops by pheasants and other game.

Labor Troubles.—Labor troubles in 1913 were neither so acute nor so widespread as in either of the two previous years. The events of the year, however, disclosed new and disquieting tendencies towards an implacable warfare between labor and capital. Syndicalism for the first time became an important factor in the labor unrest. Late in August employers of labor in Dublin revolted against the tyranny of the Irish Transport Workers' Union, a syndicalist organization whose secretary, James Larkin, had disorganized local industry by calling out its members in support of a series of trivial disputes. Employers in various industries declared lockouts against the members of this organization which eventually affected about 13,000 workers. The lockouts were followed by fatal riots which the police suppressed with severity; meetings of the Transport Workers' Union were proscribed and Larkin was arrested on the charge of sedition and incitement to riot. He was convicted by a jury on Oct. 27 and sentenced to seven months' imprisonment. His followers threatened to make his conviction an election issue in every by-election in Great Britain. The prospect of the defection of the Labor party from support of the Liberal Home Rule policy threw

the Nationalists into a panic. On Nov. 8 Reading returned a Unionist in a by-election to fill the vacancy caused by the promotion of Sir Rufus Isaacs, after a campaign in which Home Rule was made the sole issue, and in another election in Linlithgowshire on the same day the Liberal majority was reduced by three-fourths. Faced by these results, the Government also became panic stricken, and on Nov. 13 Larkin was pardoned. With his prestige among the Dublin labor element immeasurably heightened by the Government's blunder, Larkin set out for England to carry the "fiery cross" of a general strike throughout the United Kingdom. A special Trades Union Congress in London on Dec. 9, however, rejected a resolution in favor of a sympathetic strike throughout the British Isles in support of the transport workers in Dublin and repudiated Larkin's principles and practice as a labor leader. The Dublin strike, denied the support of the English unionists, immediately collapsed.

The repudiation of Larkin by the British labor leaders was a definite rejection of syndicalism. Other strikes during the Summer, however, indicated that the leaders are no longer able to control the rank and file of trade unionists. Railway workers at Liverpool, Birmingham and Cardiff, cotton workers at Bolton, and other isolated groups struck for petty grievances in violation of contracts and in defiance of the wishes of the central organizations of their unions. This new tendency in British labor is regarded with grave apprehension.

Against the growing tyranny of organized labor, capital has begun to consolidate its resources for defence of its freedom to bargain individually with free workers or collectively with trade unions. In September large employers of labor completed the organization of the United Kingdom Employers' Defence Union, the members of which propose to guarantee a fund of $250,000,000 for mutual protection. The Union disclaims an anti-trade union attitude, but it proposes to use the guarantee fund to defend members against the interference of outside organizations, to uphold the inviolability of contracts, and, when strikes are forced upon them, to prevent intimidation of workmen by members of trade unions or any other kindred organizations.

The Unionist Party and Tariff Reform.—In January a peaceful revolution in the Unionist party gave a new definition to the policy of tariff reform based on Imperial preference introduced into English politics by Joseph Chamberlain in 1903. The principle of taxing imports of food, to which Mr. Chamberlain and his disciples adhered as an essential element of Imperial preference, divided the Unionist party into two hostile camps. The retirement of Mr. Balfour after the two unsuccessful campaigns of 1910 and the choice as leader of Bonar Law, an exponent of scientific protection and an ardent Imperialist, was a triumph for the advocates of tariff reform. They attempted to consolidate their victory by persuading Mr. Law in November, 1912, to permit Lord Lansdowne to withdraw a pledge given by Mr. Law to his Manchester constituents that in the event of the success of the Unionist party no new tariff would be imposed without a direct appeal by referendum to the electors; but they failed to take account of a powerful and growing sentiment in the party, the result of the extraordinary trade prosperity of the last two or three years and of the increasingly socialistic tendencies of the Liberal Government, in favor of eliminating tariff reform from the Unionist programme and of fighting the next general election on a critical and defensive rather than an offensive platform. The result was an immediate outbreak of discontent, which was aggravated by a new statement of policy by Mr. Law in a speech at Ashton on Dec. 16, 1912. After rehearsing the arguments for protection and colonial preference, Mr. Law declared that the Unionist party had not abandoned the principle of food duties, but as food duties were contemplated solely for the sake of Imperial preference, they proposed to impose them only after a conference of the colonies had considered the whole subject of preferential trade and had declared a tariff on foodstuffs to be essential for preference. On Jan. 10, after a frank and full discussion, 229 of the 282 Union-

ist members of Parliament representing all sections of the party, presented a memorial to Mr. Law assuring him of the absolute loyalty of the party but expressing the hope that food duties would not be made an issue in the next campaign. They requested a modification of the Unionist policy to include a pledge that, should it prove desirable after consultation with the colonies to impose new duties on food in order to secure the most effective system of preference, the new tariff would not be established until it had been approved by the people at a general election. With the loyal concurrence of Austen Chamberlain, the protagonist of Imperial preference based on food duties, Mr. Law accepted the modification on Jan. 13, and on the 24th restated at Edinburgh the programme of the reunited party: to impose a tariff on foreign manufactured goods lower than that of any other industrial country; to give the colonies the largest preference in the home market possible without the imposition of new duties on food; and to establish throughout the Empire, by means approved by the colonies and by the British electorate, coöperation in trade as well as in defence.

THE COLONIES

Australia.—The chief event of the year was the fifth general election since the establishment of the Commonwealth. Alfred Deakin, thrice Premier of the Commonwealth and Australia's pioneer leader in the Imperial movement, resigned the leadership of the Liberal party early in January. His successor was Joseph Cook, a Liberal of Radical sympathies inherited from a brief period of leadership of the Labor party in New South Wales in the early nineties, who had been Minister of Defence in Mr. Deakin's last Cabinet. Under Mr. Cook's leadership the Liberals made a vigorous campaign in opposition to proposed constitutional amendments for the nationalization of monopolies and the establishment of complete control by the Commonwealth Government over commerce and commercial organizations, two of which had been once defeated in 1911 (*A. Y. B.*, 1911, p. 133). The Liberal platform pledged the party to the maintenance of state rights, the development of Australian defence, the maintenance of the existing tariff and the appointment of a permanent tariff and industrial commission, a policy of Imperial reciprocity by preference, and the establishment of a contributory scheme of national insurance. The Labor party made the six constitutional amendments the principal issue of the campaign and offered an extensive programme of commercial reforms. The election of June 30 overturned the Labor majority in the House of Representatives and gave the Liberals 38 members, a majority of one. Of the 18 Senators elected, 11 were Laborites, reducing the Liberal representation to only seven of the 36 seats.

All the referenda were rejected by small majorities. Mr. Fisher resigned the Premiership on June 20, and on the 24th Mr. Cook completed the following Cabinet, assuming himself the portfolio of Home Affairs: Treasurer, Sir J. Forrest; Attorney-General, W. H. Irvine; Defence, Senator E. D. Millen; External Affairs, P. M. Glynn; Trade and Customs, L. E. Groom; Postmaster-General, A. Wynne; Vice-President of the Executive Council, Senator J. H. McColl; and W. H. Kelly and Senator J. S. Clemons, without portfolio.

Parliament was opened on July 9 and on Aug. 12 Mr. Cook announced a programme practically identical with the Liberal platform. Except where it coincides with the Labor platform, however, the Ministerial programme is of practical importance only as campaign material. Under existing conditions it is impossible for Parliament to make any progress, and Mr. Cook announced on Aug. 21 that the Government would shortly appeal to the country.

The provision of the Commonwealth constitution authorizing the creation of an Interstate Commission was put into effect by an act passed during the last session of the Labor Parliament. The Commission of three members created by the Act combines the functions of a tariff and a railway commission. It is empowered to inquire into production, prices, exports, imports, wages, profits, immigration, labor, and other matters having a

bearing on the operation of the tariff, in which the Commission is authorized to recommend changes in the direction of scientific protection. The Commission has jurisdiction also over interstate waters used for either navigation or irrigation and it is further empowered to fix maximum rates for any service of common carriers.

The budget for 1913–14, presented to Parliament on Oct. 2, estimated the revenue at £21,462,000. Expenditure was estimated to absorb not only all the revenue but also the surplus of £2,653,000 accumulated from previous years. The chief increase in expenditure was for defence. This item amounted to £5,750,000, an increase of £1,400,000 over the actual expenditure of 1912; £1,000,000 was provided for naval construction, £1,500,000 for other naval purposes, and £3,250,000 for military purposes. In the fiscal year ended June 30, 1913, revenue was £21,899,413 and expenditure £21,507,863.

Both exports and imports showed a small increase in the fiscal year ending June 30. Exports of merchandise were valued at £68,512,035 compared with £66,602,964 in 1912; and imports at £75,746,287, compared with £71,278,986 the preceding year. Imports increasing at a more rapid rate than exports, the balance of trade in merchandise against Australia increased from £4,676,022 in 1912 to £7,234,252. In 1912 net exports of gold and specie turned the unfavorable balance to a balance on the credit side of £13,137,579; in 1913, however, the net exports of gold and specie decreased to £5,441,196 leaving the total balance of trade still £1,793,056 against Australia.

A board to which the Commonwealth Government submitted the prize designs for the new capital city (*A. Y. B.*, 1912, p. 752) decided early in January against the use of any one of them *in toto*. For the central area the design of Mr. Griffin was broadly followed, but features from several of the premiated and purchased designs were incorporated in the final plan. On March 12 the foundation stone of the first structure was laid by Lord Denham, the Governor-General, and the capital was formally named "Canberra."

Egypt.—Lord Kitchener's second report, published late in May, recorded continued prosperity during 1912. The political condition of Egypt is materially improved; party strife has decreased and the Legislative Council is at last of assistance to the Government. The raising of the Assuan Dam was completed in December, 1912; it is now proposed to build a new dam on the White Nile 40 miles above Khartum by which the supply of water to the agricultural lands of Lower Egypt may be still further regulated. Rural savings banks have been established and a new law exempts the holdings of small farmers from seizure for debt. Road building has been undertaken on a large scale. New resources are being developed and Egypt exported crude petroleum in 1912 for the first time. The Soudan is now very nearly self-supporting and will soon be producing cotton in large quantities. The Imperial Government decided during the year to guarantee a loan of £3,000,000 for its further development.

Sweeping changes in the parliamentary system were made by new organic and electoral laws promulgated on July 21. The legislature under the old system consisted of two bodies: a Legislative Council of 14 permanent and 16 elected members; and a General Assembly, whose sole legislative duty was to approve new taxes, composed of six Ministers, the 30 members of the Legislative Council, and 46 other elected members. These two bodies are now amalgamated into a Legislative Assembly of 89 members, of whom 66 are elected on the basis of one representative for each 200,000 of population, one-third retiring every two years. The system of election is made much more democratic. While all elections are still indirect, the elections in the third degree are abolished and the number of electors is greatly increased, to one for every 50 inhabitants. The system of nominated members, one-third of whom also retire every two years, is intended to secure the representation of minorities; certain classes of the population, the Copts, Bedouins, merchants, educationists, etc., are thus guaranteed a specified representation. The growing political responsibility of the

Egyptians is recognized by endowing the Legislative Assembly with the means of compelling the Government to undertake a careful and prolonged study of any projects of laws which do not meet with the approval of the Assembly.

India.—The financial statement for the year 1912-13 showed a revenue of £86,985,300 and expenditure of £83,623,400. The surplus of £3,361,900 again exceded that of the budget estimate by nearly two millions sterling. The estimates for 1913-14 show a surplus of £1,311,200, with both revenue and expenditure on a slightly smaller scale than in the preceding year.

The trade returns for the fiscal year ended March 31 emphasize the remarkable commercial prosperity of India. Imports increased from £92,383,256 in 1912 to £107,343,902 in 1913; and exports from £147,878,013 to £161,204,782. India is absorbing gold and silver at an enormous and increasing rate. The excess of imports over exports of precious metals was £28,731,294 in 1912 and £34,021,325 in 1913.

New Zealand.—A change in the form of New Zealand's contribution to the Imperial Navy was effected by a bill pased by the lower house of the Dominion Parliament on Dec. 4. The annual subsidy of $100,000 is to be discontinued. Instead, New Zealand is to train her own personnel in a vessel loaned by the Admiralty for the purpose. The Government proposes to build a fast cruiser in Great Britain to supplement two light cruisers placed in New Zealand waters by the Admiralty for the protection of commerce. This ship and others acquired by New Zealand will be administered by the colony in time of peace, but will pass under the direct control of the Admiralty on the outbreak of hostilities or if otherwise urgently required.

Revenue in the fiscal year ending March 31 reached £11,734,072, an increase over the preceding year of £701,528. Expenditure amounted to £11,082,038, an increase of only £47,670, but the apparent surplus for the year was wiped out by the transfer of £750,000 from the revenue account to the public works account. The public debet of the Dominion was increased by £5,706,850 during the year; the total debt now exceds £90,000,000.

South Africa.—The Defense Act of 1912 (*A. Y. B.*, 1912, p. 132) went into effect on Jan. 1. Its popularity exceded all expectations. The speech from the Throne at the opening of Parliament on Jan. 24 announced that the voluntary registration for military service had already placed at the disposal of the Government a force greatly in excess of the requirements.

The energies of Parliament during the early weeks of the session were crippled by the dispute between the Premier and General Hertzog. The situation was discussed in a full caucus of the Nationalist party on Feb. 5. The party decided by a large majority to support the Premier, and although the Government suffered an adverse vote during the session which ended on June 16, the record of legislation included acts for the regulation of immigration and native ownership of land, the equalization of taxation, the authorization of an extensive programme of railway construction, and other measures of importance. Racial antagonism prevented the passage of the bill for the establishment of a national university, one of the chief items of the Government's programme, for which Sir Julius Wernher, who died in 1912, had bequeathed an endowment of £500,000.

A final effort to compose the differences within the Nationalist party was made in the annual party conference in November. It was impossible, however, to find a basis of compromise, and General Hertzog and his followers finally seceded from the party after the conference had approved the policy of the Government by a vote of 131 to 90.

In July the Government was called upon to deal with a serious labor crisis. Late in May an insignificant dispute over a rearrangement of work in one of the Rand mines developed into a strike of white miners for recognition of their union. For several weeks the trouble was confined to one locality. The Federation of Trades, however, was known to be laying plans for a general strike and at the end of June the miners got out of hand and brought the whole movement prematurely to a head. By July 3 all work

was suspended on the Rand and the railway workers were threatening to strike in sympathy with the miners. The Government drafted into the mining area all the available police and called out all the Imperial troops in the colony. On July 4 serious riots occurred in Johannesburg, in which 19 miners were killed and over 30 seriously injured, and on the following day the city was placed under martial law. On the 5th General Botha persuaded the miners to accept a temporary agreement by which they should be reinstated without penalty whenever the mines were reopened pending a Government inquiry into their grievances. After three weeks of negotiation the mine operators offered substantial concessions to the men, including the recognition of the union on certain conditions, and the Government renewed their promise of a commission of inquiry. The miners, however, rejected the terms on July 26 and the Federation of Labor again threatened to proclaim a general strike if the full demands of the men were not conceded. The Government refused to reconsider the demands of the miners and took the most complete measures against disorder, even to elaborate arrangements for the repatriation of the native miners who had shown signs of incipient revolt. Public opinion was strongly on the side of the Government, and as the miners and railway workers withdrew their support, the extremists of the Federation of Trades were obliged to recede from their position on July 31 and to abandon the projected general strike.

The budget for 1913-14 estimated revenue at £15,389,000 and expenditure at £16,419,264; it is proposed to make up the greater part of the deficit by drawing on the unappropriated balance of the surplus of 1910-11, of which some £677,000 still remains.

Imports in 1912 were valued at £39,845,210, and exports at £61,594,-113. In 1911 the value of imports was £38,035,495, and of exports, £55,-389,353. Exports of mineral products increased from £45,268,666 in 1911 to £49,367,230 in 1912; they included in the latter year £38,342,306 in gold and £9,153,316 in diamonds.

CONTINENTAL EUROPE

FRANCE

The Presidential Election.—Raymond Poincaré was elected President of the French Republic in joint vote of the Senate and Chamber of Deputies on Jan. 17, to succeed Armand Fallières for the seven-year term beginning Feb. 18, 1913. M. Poincaré's chief opponents were M. Pams, Minister of Agriculture, M. Vaillant, a Socialist deputy, M. Deschanel, President of the Chamber of Deputies, and M. Ribot. On the first ballot M. Poincaré fell short of the necessary majority by eight votes. On the second ballot the supporters of the minor candidates transferred their votes to the three leaders; the final result was: M. Poincaré, 483; M. Pams, 296; M. Vaillant, 69, in a total vote of 859. M. Poincaré's election was exceedingly popular in spite of the political bitterness excited by the contest. He was inaugurated on Feb. 18.

The Briand Ministry.—M. Poincaré resigned the Premiership on the day following his election to the Presidency, and a few hours later M. Fallières received the collective resignation of the entire Ministry. A new Cabinet was formed by Aristide Briand, in which the portfolios were distributed as follows: Interior, M. Briand; Justice, Louis Barthou; Public Instruction, Jules Steeg; War, Eugène Etienne; Marine, Pierre Baudin; Foreign Affairs, Charles Jonnart; Finance, Louis Klotz; Colonies, Jean Moret; Agriculture, Fernand David; Commerce, Gabriel Guist'hau; Public Works, Jean Dupuy; Labor, René Besnard. The new Ministry met the Chamber on Jan. 24 with a long list of legislative proposals, the most important of which was a scheme for enabling trade unions to act in a corporate capacity. M. Briand subsequently declared the adherence of his Ministry to the essential features of

the Electoral Reform bill which passed the Chamber in 1912 (*A. Y. B.*, 1912, p. 135).

The Barthou Ministry.—On March 18 the Senate rejected the principle of proportional representation embodied in this measure and the Briand Ministry immediately resigned. A new Cabinet was formed on the 21st by Louis Barthou, with the following distribution of portfolios: Public Instruction, M. Barthou; Interior, Louis Klotz; Justice, Antoine Ratier; Finance, Charles Dumont; War, Eugène Etienne; Marine, Pierre Baudin; Foreign Affairs, Etienne Pichon; Posts and Telegraphs, Louis Massé; Agriculture, Etienne Clementel; Labor, M. Cheron; Colonies, Jean Moret; Public Works, M. Thierry. The Ministerial declaration of policy communicated to the Chamber on March 25 was confined almost exclusively to unqualified approval of the programme of the Briand Ministry for the increase of the French army. The programme was approved by the ominous majority of 63.

The Army Bill.—France replied to the projected increase in the German army before the programme of the German War Office was officially published (see *Germany, infra*). On March 6 the Briand Ministry introduced a bill in the Chamber of Deputies to increase the peace strength of the Army by the restoration of the three-year term of military serivce, reduced to two years by the law of 1905. The bill also increased by two years the term of service with the reserves, raising the total period of liability from 25 to 28 years—three years with the colors, 11 years in the reserve of the active Army, seven years in the Territorial Army, and seven years in the Territorial Reserve. At the same time the Ministry asked for an extraordinary credit for military purposes of $100,000,000, but this demand was later reduced to $84,000,000. The Socialists and syndicalists made an active campaign against the bill and fomented a few isolated outbreaks of mutiny among the soldiers whose term expired in 1913. The opposition, however, was mainly for political effect in view of the impending elections, and the Government's programme was popularly accepted as a necessary sacrifice. In the Chamber provisions were added for an allowance of about 25 cents a day with 10 cents additional for each child under 16 to families whose sole support is serving in the Army, and for the incorporation of physically selected conscripts at the age of 20 instead of 21, thus abolishing the retroactive features of the original measure. The bill was passed by the Chamber of Deputiés on July 19 by a vote of 358 to 204; on Aug. 7 it was approved without change by the Senate by a vote of 250 to 37. By the new law the peace strength of the Army is raised to 673,000, an increase of about 170,000 men.

Finance.—The budget for 1913 was not passed until July, seven months in arrear. After various revisions the estimate of the initial deficit was increased from the original figure of $32,200,000 (*A. Y. B.*, 1912, p. 135) to $85.087,000. The final estimate of expenditure was $948,000,000. This estimate did not include large supplementary votes for armaments and other purposes. The additional revenue required to meet the deficit in 1913 and the further financial burdens of 1914, estimated at $39,200,000, was to be obtained from increases in the tax on alcohol and in the stamp duties and from new taxes on collieries, electric lamps and motion-picture films.

The budget for 1914 introduced in the Chamber of Deputies on Nov. 4 foreshadowed another enormous deficit. It estimated revenue at $915,860,000 and expenditures at $1,074,660,000. To meet the anticipated deficit of $158,800,000, the Government proposed to increase indirect taxation by another $60,000,000; a special loan of $80,000,000 was proposed to relieve the general budget of the expenditure from 1911 to 1913 on the military operations in Morocco; and the balance was to be covered by the remnant of the surplus realized in the fiscal year 1912.

To meet the extraordinary expenditure involved in the increase of the Army and the cost of the pacification of Morocco the Government on Nov. 14 introduced in the Chamber a bill for the issue of $260,000,000 of perpetual three per cent. *rentes*. For

the service and redemption of the new debt it proposed to levy certain succession duties and a progressive tax on incomes above $2,000. The Committee on Fiscal Legislation approved a loan of $180,000,000 to cover the military expenditure but refused to include the cost of the Morocco expenditure. They rejected also the succession duties and recommended instead a personal and annual tax on capital, in addition to the tax on incomes. In the Chamber the Government urged the immediate necessity of raising the full amount of the proposed loan and insisted that the new *rentes* should enjoy all the immunities from taxation of the old. On this latter point the Government was defeated on Dec. 1 by a vote of 290 to 265 and M. Barthou at once placed the resignation of the Cabinet in the hands of President Poincaré.

The Doumergue Ministry.—The conflict over the Electoral Reform bill combined with the fiscal question made the situation one of extreme difficulty. M. Ribot and M. Jean Dupuy refused the offer of the Premiership and the President finally called upon Senator Gaston Doumergue, a leader of the Socialist-Radical party, who formed the following Cabinet on Dec. 8: Foreign Affairs, M. Doumergue; Interior, René Renoult; Justice, Bienvenu Martin; War, Joseph J. B. E. Noulens; Marine, Ernest Monis; Finance, Joseph Caillaux; Public Instruction, René Vivani; Public Works, Fernand David; Commerce, Louis J. Malvy; Colonies, Albert F. Lebrun; Agriculture, Maurice Reynaud; Labor, Albert Metin.

The new Ministry met the Chamber on Dec. 11. M. Caillaux definitely announced the postponement of the loan and an attempt to bind the Government to prevent the prior issue of any foreign loan in Paris was defeated. The Ministry secured a majority of 161 on a vote of confidence but with the undertaking that the Government would give precedence to national over foreign necessities.

Electoral Reform.—On Nov. 18 the Chamber of Deputies passed a second time the Electoral Reform bill of 1912. In its original form (*A. Y. B.*, 1912, p. 135) the bill proposed the substitution of *scrutin de liste* for *scrutin d'arrondissement* and proportional representation by means of the electoral quotient. The Senate, as noted above, accepted the principle of *scrutin de liste* but rejected the provision for the representation of minorities. During the second debate in the Chamber this provision was restored and the amended bill, passed by a vote of 333 to 225, was returned to the Senate, which still remains fundamentally opposed to proportional representation.

Commerce.—France's foreign trade in 1912 showed a slight decrease in imports and a somewhat larger increase in exports over the figures for 1911. Imports were valued at $1,534,515,208, compared with $1,556,704,804 in 1911; and exports at $1,280,816,322, compared with $1,172,833,787 the previous year. Imports from the United States increased from $159,584,559 to $168,682,000, while exports to the United States increased from $119,583,254 to $136,283,160.

GERMANY

The Army Bill.—A large increase in the German army, justified by the pleas of the growth of the Pan Slav movement in the East and the development of French chauvinism in the West, was foreshadowed in a speech of the Imperial Chancellor in February. The full proposals of the Government were published on March 28. The programme called for an increase in peace strength of 4,000 officers, 15,000 non-commissioned, 117,000 privates and 27,000 horses, raising the peace strength of the army in privates from 544,000 to 661,000, or from 0.84 to 1.02 per cent. of the total population, involving an annual increase in recruiting of about 66,000, and in officers and non-commissioned officers to 146,000. In addition to the formation of new units and an increase in the peace strength of the existing establishment, the bill proposed to triple the war chest of $30,000,000, to expend $52,500,000 on the defences of the eastern frontier, and to strengthen the air fleet by an expenditure of $20,000,000 on land equipment and the foundation of a naval air fleet of 10 airships and 50 aeroplanes. The recurring annual expenditure involved

in the scheme was estimated at $47,500,000, the non-recurring expenditure at $262,500,000. To provide the non-recurring expenditure the Government proposed to levy a special tax of 0.5 per cent. on all property above an exemption limit of $2,500 and a tax on individual and corporate incomes above $12,500. The permanent expenditure the Government proposed to obtain from an increase in the contributions of the individual states from 20 cents to 51 cents per head of population, for which the states were expected to provide by the establishment of a property tax before 1916.

All the parties except the Socialists accepted the Government's programme as a national necessity and the Army bill was approved by the Reichstag on June 30 without material change. The financial provisions, however, were almost completely transformed. The extraordinary levy on property was changed from a flat rate to a graduated scale rising from 0.15 per cent. on the first $14,500 over an exemption limit of $2,000 to 1.5 per cent. on fortunes over $1,250,000; a graduated tax on incomes other than income from property was added, rising from one per cent. on the first $1,250 over an exemption limit of the same amount to eight per cent. on incomes over $125,000. To meet the permanent expenditure, the proposed increase in the contributions of the individual states was rejected in favor of a graduated Imperial tax on property increment, to be assessed every three years, rising in double progression, according to the amount both of property and of the increase, above an exemption limit of $5,000 of property and $2,500 of increase.

The War Office Scandal.—While the Army bill was pending in the Reichstag the disclosure of irregularities in the War Office and the Admiralty threatened for a time seriously to exasperate popular discontent with the new burden of armament taxation. A Socialist Deputy informed the Reichstag on April 18 that traffic in military and naval secret documents between subordinate War Office and Admiralty officials and German armament firms, especially Krupps, had been discovered and was under investigation by the Government. It was further alleged that certain armament firms were in the habit of coöperating with foreign firms to promote international rivalry in armaments by inspiring inflammatory articles in chauvinistic journals. The admission of the Minister of War that secret documents had been obtained by Krupps through bribery in the War Office created a most painful impression. It transpired that the War Office had been informed of the irregularities in October, 1912, and had caused the arrest of six minor Government officials and two Krupp agents in February. The officials were brought to trial in July and the Krupp agents in November; all the accused were convicted and sentenced to short terms of imprisonment, with the exception of the principal Krupp agent who received the option of a fine.

The Military in Alsace.—A series of petty incidents of military oppression in Zabern, a garrison town in Alsace, led early in December to a serious constitutional crisis. Early in November the civil population of Zabern made a riotous demonstration against a young infantry officer because of abusive remarks about Alsatians. Out of this incident grew a violent controversy between the military and civil authorities which eventually reached the Reichstag. While the Government deferred replying to the interpellations of Alsatian deputies, the Zabern garrison began to inflict punishment on townspeople who showed derision and contempt toward the military, and on Dec. 2 the lieutenant who had been the original cause of the trouble struck with his sword and seriously wounded a lame shoemaker for alleged insulting language. Before this outrage was known in Berlin the Imperial Chancellor, von Bethmann Hollweg, made a statement in the Reichstag admitting the impropriety of the arbitrary acts of the military but excusing them on the ground that they were intended "to prevent worse things from happening." On Dec. 4 the Reichstag adopted by a vote of 293 to 54 motions of dissatisfaction with the Chancellor's statements offered by the Radicals and

Socialists. Public opinion throughout Germany was shocked by the attitude of the Government and the press was practically unanimous in its condemnation of the defence of military prestige against obligation to obey the laws. For a few days the fate of the Government was very uncertain. The Socialists demanded the resignation of the Imperial Chancellor as an alternative to the rejection of the budget. Although the Chancellor flatly refused to resign, the prompt action of the Emperor in ordering the transfer of the Zabern garrison and the punishment of its principal offenders withdrew the support of the National Liberals and Radicals from the Socialists and prevented the threatened conflict between the Reichstag and the Government.

Commerce.—The expansion of Germany's foreign trade continued at an accelerated rate during 1912, both imports and exports increasing by more than 10 per cent. Imports reached a value of $2,674,000,000, compared with $2,310,000,000 in 1911; and exports a value of $2,239,000,000, compared with $1,928,000,000 the previous year. The United States displaced Russia as the largest exporter to Germany with $396,500,000 to her credit, compared with $319,800,000 in 1911; exports to the United States increased from $150,600,000 in 1911 to $174,500,000 in 1912.

TURKEY

The Balkan War.—The position of affairs at the close of 1912 offered encouraging indications of an early settlement of the Balkan War (*A. Y. B.*, 1912, pp. 89-93, 142-5). Under the terms of the armistice concluded on Dec. 3, 1912, the belligerents, with the exception of Greece, were resting on their arms, awaiting the outcome of peace negotiations begun in London on Dec. 16, 1912. In a campaign of eight weeks the Allies had swept the Turks from Albania, Epirus, Macedonia and the greater part of Thrace. The Turks were in possession of only five important positions. The main body of the Greek army, continued during the armistice to operate against Janina, the last stronghold of the Turks in Epirus, while Greek warships kept the Turkish fleet bottled up in the Dardanelles. Scutari was invested by the whole Montenegrin army, reinforced by the Servian artillery, and Adrianople was surrounded on all sides by Bulgarian and Servian forces. At Bulair a Turkish force guarding the narrow entrance to the Gallipoli peninsula was menaced by a strong detachment of the Bulgarian army. The Turkish army under Nazim Pasha faced an immense force of Bulgarians under General Savoff from behind the Tchataldja lines, the last defense of Constantinople. In this hopeless situation Turkey entered the peace negotiations prepared to relinquish the greater part of the conquests of the Allies as the price of retaining a small remnant of her European empire.

On Dec. 23, 1912, the Allies presented their territorial demands. They involved the surrender of all territory west of a line from Rodosto to Cape Malatra with the exception of the Gallipoli peninsula, and of the Turkish islands in the Aegean, including Crete, with certain exceptions, to be specified by the Powers, relating to the islands near the mouth of the Dardanelles. In a series of proposals Turkey gradually conceded the bulk of the Allies' demands, but insisted on retaining the Aegean islands and the town and north-eastern part of the vilayet of Adrianople. On Jan. 3 the Allies demanded as a condition of the continuance of negotiations that Turkey agree forthwith to the relinquishment of sovereign rights over Crete, the cession of the Aegean Islands, and an adjustment of the frontier of the vilayet of Adrianople to include the town in the ceded territory. The Turkish reply on Jan. 6 offered to abandon sovereign rights in Crete on condition that the Allies would not demand the cession of the other Aegean Islands, but refused to surrender the town of Adrianople on the ground that its possession was essential to the security of Constantinople and the Dardanelles. The Allies thereupon suspended the negotiations and opened the promotion of a settlement to the initiative of the Great Powers.

The Powers on Jan. 15 presented to the Porte a collective note urging Turkey to agree to the cession of Adrianople and to leave to the determination of the Powers the fate of the Aegean islands. They undertook to safeguard Musulman interests in Adrianople and to find a solution of the Aegean question which would not menace the security of Turkey, and they reminded the Porte of the grave peril of a renewal of the war and of the dependence of Turkey in the event of the conclusion of peace on the moral and material support of the Powers. Kiamil Pasha and the Turkish Cabinet, while convinced of the futility of opposing the will of the Powers, hesitated to assume the entire responsibility of a decision to surrender Adrianople and the Aegean islands. They sought, therefore, the advice of a Grand Council, and on Jan. 22, their policy was approved by the leading civil, military and religious authorities of the Empire. The following day, while the Cabinet was engaged in drafting a tentative acceptance of the advice of the Powers, the Government of Kiamil Pasha was overthrown by a *coup d'état* planned by a group of Young Turk politicians under the leadership of Talaat Bey and executed by Enver Bey. The conspirators, supported by a few hundred adherents of the Committee of Union and Progress, invaded the council chamber, forced the resignation of Kiamil Pasha, and made prisoners of the other members of the Cabinet. Nazim Pasha, Commander-in-Chief of the Turkish Army, was murdered in the only serious attempt to resist the conspirators; otherwise the demonstration was practically without bloodshed.

Mahmud Shevket Pasha was proclaimed Grand Vizier the same evening and on the 24th completed a Cabinet (see *infra*). The revolution created a most painful impression throughout Europe, and it was with difficulty that the Balkan Allies were persuaded to wait for the reply of the new Government to the note of the Powers before denouncing the armistice. The note delivered to the Powers on Jan. 30 was extremely conciliatory. It insisted on maintaining Turkish sovereignty over the section of Adrianople on the left bank of the Maritza but left the fate of the rest of the city, and with certain exceptions of the Aegean Islands, to the determination of the Powers. The Allies, however, refused to accept these concessions as a basis for the resumption of peace negotiations. The armistice was immediately denounced and hostilities were resumed on Feb. 3. (See also III, *International Relations.*)

Izzet Pasha, Chief of the General Staff, was appointed Commander-in-Chief of the Turkish armies on Jan. 31. The forces at his disposal numbered some 50,000 men in the Gallipoli peninsula and 200,000 at Tchataldja. During the armistice the positions held by the Turks had been strengthened and their defenders reinforced with men and munitions of war, but the *morale* of the army was impaired by political quarrels among the officers, and the lack of money and administrative service precluded effective offensive operations. The Bulgarians, on the other hand, with 550,000 men in the field and a potential reserve of 250,000 Servians exclusive of the 45,000 already assisting around Adrianople, were in a position to assume the offensive in any of three directions. The alternatives open to them were to attack the Gallipoli peninsula, reduce the northern defenses of the Dardanelles, and clear the straits for the appearance of the Greek navy before Constantinople; to force the Tchataldja lines; and to concentrate their forces on the attack on Adrianople. They chose the latter plan of campaign. The greater part of the Bulgarian army was withdrawn from Tchataldja and joined a new force of Servians before Adrianople. The Turks were occupied by desultory attacks at Tchataldja and Bulair, but the chief incidents of the second period of the war were the successive capitulations of Janina, Adrianople and Scutari.

The garrison of Janina, approximately 30,000 men, surrendered to the Greek army under Crown Prince Constantine on March 6. Adrianople fell three weeks later. On March 24 the allied armies under General Ivanoff began a determined assault on the eastern front of the defences. Under

cover of a heavy artillery fire, the Bulgarian infantry stormed a number of the advanced Turkish positions. The attack was continued with similar success the following day. Early in the morning of the 26th the Allies carried the heights commanding the town and the northern forts of the eastern section and advanced their artillery to command the town itself. Shukri Pasha then surrendered the fortress and the garrison of 30,000 were taken prisoners of war. In the final assault the Allies lost 7,000 in killed and wounded; the Turkish loss was estimated at 10,000.

The siege of Scutari was being prosecuted meanwhile by a force of 30,000 Montenegrins and 15,000 Servians. With the resumption of hostilities in February the Allies abandoned their plan of starving the garrison into surrender and began vigorous offensive operations which ultimately involved them in serious difficulties with the Great Powers. On March 26 the Ambassadors of the Powers in London reached an agreement, after three months of negotiation, on the incorporation of Scutari in the new state of Albania (see III, *International Relations*). The decision of the Powers was communicated to Montenegro and Servia on the 28th, with a demand for the withdrawal of all troops from Albania territory. The reply of the Allies was to remind the Powers of their solemn declaration of neutrality at the outbreak of hostilities and to carry by assault on April 2 several tiers of the Turkish entrenchments before Scutari. The Powers thereupon undertook to coerce Montenegro by an international blockade of the Montenegrin coast. An international squadron representing all the Powers except Russia assembled in Montenegrin waters on April 4. On the 10th, the squadron began a formal blackade of the coast, and during the next fortnight the warships cruised before Antivari and Dulcingo while King Nicholas continued to the final issue the futile siege on which all of Montenegro's hopes of gain and glory were concentrated. Servia yielded to the pressure of the Powers on April 16 and withdrew her army from the investment. The Montenegrin forces, now reduced to 25,000 men, continued the siege until the 23d when Essad Pasha, the Turkish Commander, surrendered the town, although provisioned for another three weeks, and withdrew the garrison with all the honors of war. The acute international crisis which followed the fall of Scutari is reviewed on another page. It was relieved by the evacuation of the town by the Montenegrins on May 13 and its occupation by an international force from the blockading fleet. (See III, *International Relations.*)

Meanwhile negotiations for peace had been resumed. On March 1 Turkey placed her case unreservedly in the hands of the Powers with a request for mediation. The Allies agreed on March 14 to accept the mediation of the Powers on conditions substantially repeating their original territorial demands of Dec. 3, 1912, and involving further the payment of a war indemnity. After a month of negotiation, the course of which is reviewed on another page (see III, *International Relations*), the Allies withdrew their conditions on April 21 and accepted without reservation the offer of mediation on the basis proposed by the Powers. Hostilities had meanwhile been suspended at Tchataldja by verbal agreement of the Bulgarian and Turkish commanders on April 14, and two days later the Servian army was withdrawn from the siege of Scutari. The capitulation of Scutari on the 23d ended the military operations of the second period of the war. In the middle of May representatives of Turkey and the Allies assembled in London on the invitation of the Powers for the formal conclusion of a treaty of peace, and on the 30th the Treaty of London was signed. (See III, *International Relations.*)

Having brought the war against their common enemy to an issue successful beyond their most sanguine hopes, the Balkan Allies fell out over the division of the spoils. Their early plans (see III, *International Relations*) contemplated a joint campaign for the liberation of Macedonia, and at the outbreak of hostilities their expectations did not rise beyond the expulsion of Turkey from this one

province. The unexpected successes of the Bulgarians in Thrace, however, extended the prospect of conquest and altered the concert of the Allies. While the Bulgarians concentrated most of their troops before Adrianople and Tchataldja, the Servians overran northern Macedonia and occupied territory far beyond the limits laid down in the treaty of alliance. Hence the Servian army demanded the abrogation of the treaty and a revision of the frontier. In southern Macedonia the Greeks, whose sphere of influence was not delimited by treaty, were determined at all costs to hold their conquest of Salonika. Thus the Servians and Greeks were united in a common interest against their dominant partner.

Between the Greek and Bulgarian forces around Salonika actual fighting was in progress from early in March, beginning with a small engagement at Nigrita on March 5. The Bulgarian and Servian armies released from the sieges of Adrianople and Scutari were concentrated in Macedonia early in May, but hostilities between them, except for minor skirmishes, waited for several weeks upon the issue of diplomatic negotiations between the two governments, the course of which is outlined elsewhere (see III, *International Relations*). The impatience of the armies, however, destroyed the possibility of a peaceful settlement. On June 30, the Bulgarians under General Savoff, attacked at Gyevgeli the line held by the Servians and Greeks, now formally in alliance. General Savoff expected by a sudden attack to thrust a wedge between the Servians and Greeks and occupy for Bulgaria the territory in dispute in western Macedonia. The movement precipitated a general engagement along the whole front of over a hundred miles, extending from Kratovo to Ishtip and Strumnitza, through Gyevgeli and onward to Salonika. In three days of furious fighting the Bulgarian right flank was driven back almost to the frontier. On July 6 Servia and Greece formally declared war on Bulgaria and on the 10th they were joined by Montenegro, but the war was already won. In the bloody struggle in Macedonia during July the Bulgarians were beaten at all points and gradually driven within their own frontiers where they made their only successful stand. At the same time Bulgaria was threatened from the north by Roumania who had intervened with a declaration of war on July 10 to chastise Bulgaria for breaking the peace between the Balkan Allies and to secure territorial compensation for her neutrality during the war against Turkey (see III, *International Relations*). A Roumanian army penetrated without opposition to within a few miles of the capital. The Turks meanwhile had begun on July 12 the reoccupation of Thrace and entered Adrianople on the 22d. Bulgaria appealed to Russia for mediation to end the war on July 10. On the 30th an armistice was arranged at a peace conference of the five Balkan States in Bucharest, and a week later, on Aug. 6, Bulgaria assented to a humiliating treaty defining the future frontiers. The Treaty of Bucharest, signed on Aug. 10, and the successive adjustments between Bulgaria and Turkey, Turkey and Greece, and Greece and Servia, are discussed on another page (see III, *International Relations*).

Politics.—Mahmud Shevket Pasha assigned the portfolios in the Cabinet formed on Jan. 24 as follows: War, the Grand Vizier; President of the Council, Prince Said Halim; Interior, Hadji Adil Bey; Foreign Affairs, Mukhtar Bey; Marine, Tschuruk Sula Mahmud; Justice, Ibrahim Pasha; Finance, Rifaat Bey; Public Works, Batzaria Effendi; Evkef, Hairi Bey; Agriculture, Djelal Bey; Posts, Oskian Effendi; and Public Instruction, Shukri Bey. Only the Ministers of the Interior and Finance were statesmen of reputation and the Ministry drew its chief strength from the Grand Vizier.

The assassination of Nazim Pasha was avenged on June 11 by the murder of Mahmud Shevket Pasha. Prince Said Halim was at once appointed Grand Vizier; on the 17th he completed a Cabinet. The Grand Vizier confirmed all but five of the preceding Cabinet in their portfolios and himself assumed the portfolio of Foreign Affairs; the new Ministers were: President of the Council, Halil Bey;

Interior, Talaat Bey; War, Izzet Pasha; Commerce, Suleiman ed Bustani; and Public Works, Osman Niziani Pasha.

OTHER COUNTRIES

Austria-Hungary.—A bill granting a certain measure of franchise reform was adopted by the Hungarian Chamber of Deputies on March 8. The agitation for universal suffrage has kept Hungarian politics in a state of chaos for several years. The new law provides for a considerable extension of the suffrage but it safeguards in every possible way the dominance of the Magyar element. The electors are divided into two classes: those who possess certain educational qualifications and pay direct taxes of $8.00, or possess an equivalent amount of land, are entitled to vote at the age of 24; for all others the qualifications are, age of 30 years, five years of Hungarian citizenship, and one year's residence. Voting is by word of mouth.

The Hungarian Cabinet headed by Dr. de Lukacs resigned on June 4 as a protest against the failure of a libel action brought by the Premier early in the year against an Opposition deputy who had accused Dr. de Lukacs of the diversion of large sums of public money to party uses. Count Tisza, President of the Chamber of Deputies, was made Premier on June 8. He retained in his Cabinet all but two members of the preceding Ministry.

In October the Common Council of Ministers of the Dual Monarchy decided upon an increase in the yearly contingent of recruits for the Army by 35,000 men, raising the peace footing by 70,000 men and involving an addition to the annual military budget of $30,000,000. The Council also approved the addition of four Dreadnoughts to the naval programme. The cost of Austria-Hungary's preparations during the Balkan crisis (see III, *International Relations*) was $70,000,000.

Belgium.—An agitation of many months for a reform of the franchise system reached a climax in April in a general strike organized by the Socialist trade unions. The Belgian franchise is open to all males over 25 years of age but supplementary votes are granted for property and educational qualifications which the working classes are generally unable to meet. After the elections of 1912, which increased the majority of the Clerical party (*A. Y. B.*, 1912, p. 134), the Socialists and Radicals despaired of obtaining the abolition of plural voting by normal methods and began the organization of a general demonstration of protest. About 350,000 men, for the most part engaged in the mining industry, ceased work on April 14; the number gradually increased to half a million and the strike spread to other industries. At the outset the Government assumed an unyielding attitude, but after ten days of peaceful demonstration, which gave the Government no opportunity to resort to the use of force, a compromise was reached and the strike was ended on April 24. Under the terms of the agreement a commission has been appointed to draft changes in the franchise law abolishing plural voting in provincial and communal elections.

The Government programme for the extension of military service was approved by the Chamber of Deputies on May 30. Instead of taking only one son per family, compulsory service with the colors for a period of 15 months is now made general. The peace strength of the army is increased under the new plan to 55,000 men, and the war strength to 340,000. The initial cost of the reorganization of the Army is estimated at $57,000,000, for which a 25-year loan is to be issued. The annual increase in the military budget, estimated at $9,400,000, is provided for by new taxes on the income from corporation securities and foreign bonds, automobiles, motion-picture films and spirits, and increased succession and stamp duties.

Greece.—George I, King of the Hellenes, was shot and killed in the principal street of Salonika on March 18. His assassin, one Alexandre Skinas, a Greek of feeble intellect, alleged no motive for the crime except the desperation of sickness and want. The late King was born in Copenhagen on Dec. 24, 1845, the second son of Christian IX, King of Denmark. He was

elected King of the Hellenes by the Greek Assembly after the deposition of King Otho in 1862 and accepted the throne on June 6, 1863. On Oct. 27, 1867, he married the Grand Duchess Olga Constantinovna of Russia. The periods of tranquillity in King George's long reign were few and brief, but the material and political progress of Greece was nevertheless steady and substantial. In the perpetual struggle for the recovery of Greek territory from Turkey, Greece gradually developed a national sentiment. The conquest of the Greek arms in the Balkan War were the response of a united nation to King George's labors of half a century for the regeneration of his adopted country.

Constantine IX, eldest son of George I, was proclaimed King in Athens on March 19. The new King was born in Athens on Aug. 2, 1868, and was married on Oct. 27, 1889, to Princess Sophia of Prussia, sister of the German Emperor. As Crown Prince he devoted himself to the Army and has been for some years its commander-in-chief. The brilliant campaigns of the Greeks in the Balkan War are the measure of his qualities as a military leader.

Italy.—The first general election under the electoral law of 1912 was completed on Nov. 4. The new law introduced practically universal manhood suffrage in place of a restricted franchise and increased the electorate from three to eight millions; the franchise was denied only to illiterates who have not completed their military service. The law provided also for the payment of Deputies at the rate of $1,200 per year. The result of the election was the return of the Giolitti Government by a majority of 74 in the Chamber over all other parties combined. The representation of parties in the new Chamber is as follows: Constitutional Ministerialists, 291; Constitutional Opposition, 22; Constitutional Independents, 5; Catholics, 24; Radicals, 70; Republicans, 16; Socialist Reformists, 23; Socialists proper, 51; Syndicalist Socialists, 3; Independent Socialists, 3. The remarkable feature of the election was the small gain of the extremists and of the democratic parties in general, notwithstanding the extension of the franchise to the poor and illiterate classes.

Netherlands.—The election of a new States-General in June overthrew the coalition Government headed by Theodore Heemskerk and definitely rejected the policy of a protective tariff put forward by the Conservative Ministry as a means of relieving the budget of the burden of the Dutch colonies in the East. Warned by the results of previous by-elections, the Government strove to eliminate tariff reform as an issue in the campaign and to concentrate the attention of the electorate on their social and educational programme. The five Liberal and Socialist groups of the Opposition, however, fought the campaign on the issue of free trade and secured 55 of the 100 seats in the second chamber. The Social Democrats more than doubled their representation, and with 18 members obtained the balance of power among the radical parties. They refused to coöperate with the Liberals in the formation of a Cabinet. The Queen thereupon called upon Cort van der Linden to form an extra-Parliamentary Cabinet.

Portugal.—The Cabinet headed by Dr. Duarte Leite resigned on Jan. 4. After an unsuccessful attempt by Dr. Alameida, leader of the Evolutionists, a new Ministry was formed by the Democratic leader, Dr. Alfonso Costa, in which the portfolios were distributed as follows: Interior, Dr. Costa; Colonies, Almeida Ribeiro; War, Pereira Bastos; Public Works, Antonio Silva; Marine, Freitas Ribeiro; Foreign Affairs, Goncalves Teixeira; Finance, Maruoco Sousa; Justice, Paulo Falcao.

The new Ministry has made substantial progress toward the improvement of the financial condition of the Republic (*A. Y. B.*, 1912, p. 138). The budget for 1913-14, introduced after several revisions on Jan. 10, anticipated a deficit of $3,435 with an estimated revenue of $75,747,093. Administrative reforms introduced by Dr. Costa have made it possible to finance the country out of ordinary revenue, although expenditures on education and in other directions have been materially increased. Instead of the anticipated deficit, the year is

expected to show a surplus of about $4,000,000.

A project for the creation of a large navy was announced in May. The immediate programme is to include three Dreadnought battleships of about 20,000 tons displacement, two scout cruisers, six destroyers, three submarines, and a number of auxiliary craft.

Supplementary elections were held in 37 districts on Nov. 16 to fill vacancies caused by death and resignation since the establishment of the Republic. The return of 34 Democrats gives Dr. Costa's Government a substantial majority over all opposition parties combined.

Russia.—The budget for 1913–14, published in October, estimated the total revenue at $1,767,500,000, compared with the estimate of $1,625,000,000 for 1912-13. Ordinary and extraordinary expenditure, which balanced the revenue in the budget for 1912-13, was estimated at $1,779,000,000. The free balance in the Treasury will be drawn upon for the deficit of $11,500,000. Of the revenue nearly one-third, $467,500,000, is anticipated from the liquor monopoly, an increase over the preceding year of nearly $50,000,000. Of the expenditure, $485,000,000 is assigned to the Army and Navy.

Spain.—The Liberal Democratic coalition Cabinet of which Count Romanones assumed the leadership after the assassination of Señor Canalejas in November, 1912 (*A. Y. B.*, 1912, p. 140), failed to support the new Premier in his efforts to carry out the legislative programme bequeathed to him by his predecessor. A crisis was reached late in December, and on the 31st the entire Cabinet resigned. A change of policy was averted by the action of the King, who requested Count Romanones to remain in office, and the Premier immediately formed a new coalition Ministry in which the portfolios were distributed as follows: Foreign Affairs, Navarro Reverter; Public Instruction, Lopez Munoz; War, General Luque; Marine, Amalio Gimeno; Finance, Suarez Inclan; Interior, Señor Alba; Public Works, Señor Villanueva; and Justice, Señor Barroso.

One of the most significant events in the recent political history of Spain was a conference on Jan. 14, between the King and the leaders of the Republican party on the subjects of social reform and education. A new spirit of religious toleration was exhibited late in January in a Royal order excusing non-Catholic soldiers from attendance at mass. At the same time, diplomatic relations with the Vatican, interrupted in 1910 (*A. Y. B.*, 1910, p. 81), were resumed, the Pope undertaking to prohibit the establishment of new religious orders, the original subject of controversy (*ibid.*, 1911, p. 141), for a period of two years.

The Cortes was reopened on May 26 after a recess of five months. The Conservatives refused either to act as an opposition or to alternate with the Liberals as a Government and on May 30 Count Romanones resigned. At the request of the King he resumed office on June 1 with the same Cabinet. Ten days later Count Romanones again resigned, and on the 14th again resumed office with three new Ministers. On Oct. 25 the Government was defeated in the Senate and Count Romanones withdrew finally from the Premiership. A new Ministry was formed on Oct. 27 by Señor Eduardo Dato, in which the portfolios were distributed as follows: Justice, Señor Ugarte; Finance, Count Bugallal; Public Works and Agriculture, Marquis Vadillo; Interior, Sanchez Guerra; Foreign Affairs, Marquis Lema; War, General Echaque; Navy, Admiral Miranda; Instruction, Señor Bergamin.

ASIA

CHINA

The National Assembly.—The chief service of the Advisory Council which exercised parliamentary functions in the provisional Government established in 1912 (*A. Y. B.*, 1912, pp. 144-7) was the adoption of legislation for the organization of the National Assembly. The parliament of the Republic was to consist, under this measure, of a Senate and a House of

Representatives. The Senate was to have 274 members, of which each of the 22 Provincial Assemblies was to elect ten, the remainder being elected by the Central Educational Society (eight) and electoral colleges of Mongolia (27), Tibet (ten), Turkestan (three), and Chinese abroad (six). The House of Representatives was to have 596 members, including 40 representatives from Mongolia, Tibet and Turkestan, elected by districts on the basis of one representative for each 800,000 of population with a minimum of ten representatives for each province. The age limit for Senators was fixed at 30 years, for Representatives at 25 years. For elections to the lower house the franchise was limited to male citizens over 21 years of age, of two years' residence, either payers of direct taxes of $2.00 per year, owners of real property of a value of $500, or graduates of an elementary or higher school.

Politics.—Elections under this law were conducted in a more or less haphazard fashion during the early weeks of the year. The first session of the new parliament was opened in Peking on April 8, with 177 Senators and 500 Representatives in attendance. To avoid the suggestion of a conflict of authority between the National Assembly and the provisional Administration, Yuan Shih-kai absented himself from the capital and communicated to the Assembly only a message of congratulation on the establishment of parliamentary government. The general enthusiasm, however, failed to conceal the potentialities of trouble in the hostility of the Kuo-ming-tang, the revolutionary Nationalist party of the South, to Yuan Shih-kai and his Conservative supporters of the North. From the establishment of the Republic, South China had opposed Yuan Shih-kai as the representative of the old Manchu regime. The rigorous measures of the President to suppress conspiracies against the provisional Government (*A. Y. B.*, 1912, p. 146) and the negotiations of the Government for the financial support of foreign Powers inflamed the imagination of the Nationalists with visions of autocracy. The signature of the loan contract with the Five-Power group on April 26 (see *infra*), without reference to the Assembly and against the protests of unconstitutionality raised by the Kuo-ming-tang under the leadership of Sun Yat-sen, terminated the truce between the two parties. On April 29 the Nationalists forced a resolution repudiating the agreement through the Senate by a vote of 102 to 49, and a similar resolution was adopted in the lower house on May 5 by a vote of 222 to 152. The conflict was exacerbated by a proclamation issued by Yuan Shih-kai on May 4, in answer to threats of a second revolution in the South, in which the President declared his determination to protect the territory and people of China against the violence of political factions. During the next two months the Nationalists created a deadlock in parliamentary business by refusing to form a quorum in the Assembly but refrained from any overt act of rebellion. In the middle of July, however, a young officer of Kiangsi Province who had been dismissed for insubordination by Yuan Shih-kai took up arms against the Government. Before troops could be moved to deal with this small local revolt, the revolutionary movement spread over several of the provinces on the Yangtsze-Kiang. On July 10 the army at Nanking joined the rebels, the revolutionists placed Tsen Chun-hsuan in command of the forces of the South, and the opposition to Yuan Shih-kai crystallized into organized rebellion.

The revolution, however, was premature. Outside of southeastern China the provinces remained loyal to the Peking Government. Yuan Shih-kai secured the loyalty of the Navy by arranging with banks representing the Five-Power Group for the regular payment of the crews, and at Shanghai the fleet coöperated effectively with the land forces in the defense of the arsenal, the chief objective of the southern attack. The fighting at Shanghai, which began on July 24, was the most serious engagement of the brief revolt. By the end of the month the military phase of the rebellion was past. The rebel leaders, among them Sun Yat-sen, fled to Japan. During August Government troops occupied all the revolted provinces, and except at Canton, Nanking

and a few other cities, where the rebels made a stubborn stand, the revolutionary organization collapsed with their advance. Nanking, the last considerable rebel stronghold, was captured early in September. The murder of three Japanese during the unrestrained looting in which the Government troops indulged involved the Government in difficulties with Japan, the issue of which was an official apology, the payment of an indemnity and the punishment of the murderers.

Finance.—Little progress was made during the year towards the solution of the pressing financial problems of the Republic. After several months of fruitless negotiation with the Six-Power group of bankers, the Government arranged an independent loan of $50,000,000 with the London firm of Charles Birch Crisp & Co., one-half of which was issued in September, 1912 (*A. Y. B.*, 1912, pp. 94-6). The proceeds of this loan were not immediately available and the Government was obliged to default in the payment of the instalment of the Boxer indemnity due on Jan. 1. Negotiations had been resumed meanwhile with the Six-Power group, and on Jan. 1 a preliminary agreement was reached for a 40-year, five per cent. loan of $125,000,000, secured by the salt gabelle. In view of this arrangement China cancelled for a substantial consideration the second half of the Crisp loan due in September, 1913. The Six-Power group, however, became involved in an international controversy over the list of foreign supervisors proposed by the Chinese Government. Early in March the bankers proposed a modified scheme of supervision which was rejected by the Government on the ground that it had no chance of ratification by the newly elected National Assembly. Another independent loan of $16,000,000 had been arranged meanwhile with the Lower Austrian Discount Co., of Vienna, and the withdrawal of the American syndicate on March 19 (see III, *International Relations*) encouraged the Government to hope that sufficient funds might be obtained from other sources independent of the international group. The condition of the European money market disappointed these expectations and on April 26 the Government entered into a definite contract with the Five-Power group for a 47-year, five per cent. loan of $125,000,000 to be issued at 90, of which China was to receive 84 per cent. Four representatives of the British, Russian, French and German groups, were appointed to supervise the collection of the salt tax, the audit of accounts, and the administration of the loan. The signature of the agreement had serious political consequences (see "Politics," *supra*); a preliminary instalment of $1,200,000 was nevertheless handed over to the Chinese Government on May 13 and the loan was successfully floated in the principal European capitals on May 21. Of the proceeds $60,000,000 was immediately applied to the settlement of foreign debts and $10,000,000 to the reorganization of the salt gabelle; there remained only $35,000,000 for constructive purposes of the Republic.

The lamentable financial condition of the Republic was fully disclosed in a budget produced by the Minister of Finance in June to cover the first six months of the year. The total receipts for the half-year were estimated at $25,668,000, and the total expenditure at $84,000,000. The largest item of revenue, the customs receipts, amounting to nearly $15,000,000, was at once absorbed for the service of the foreign debt. The remittances promised by provinces had a paper value of $9,000,000, none of which had been received. It thus appeared that, apart from loan advances, the available resources of the Government had been less than $1,500,000, while a deficit of over $58,000,000 had accumulated during the half year.

The Five-Power loan afforded the Government only temporary relief. Most of the proceeds was expended in crushing the rebellion in the South and in the late Summer the Government was again in the market for accommodations. Early in September the Lower Austrian Discount Co., arranged a further issue of $6,000,000 four-year, four per cent. Treasury bonds secured by the duties on the transfer of real property. In November the Five-Power group was again in consultation with the Government in the effort to discover a basis for the negotiation of a new loan.

The Cabinet.—The remnant of the National Assembly approved on July 30 the nomination of Hsiung Hsi-ling as Premier. The Cabinet which he formed resigned on Sept. 4 and on Sept. 8 the House of Representatives approved the Premier's nomination of six new Ministers. Portfolios were assigned to them as follows, the Premier acting temporarily as Minister of Finance: Foreign Affairs, Sun Paschi; Interior, Chu Chi-chien; Justice, Wiang Chi-chiao; Education, Wang Ta-hsien; Industry, Chang chien; and Communications, Chow Tze-chi.

The Presidential Election.—The National Assembly on Oct. 2 adopted a clause of the constitution providing that the President and Vice-President of the Republic shall be elected by the Assembly for terms of five years and shall be ineligible for more than two consecutive terms. Without waiting for the constitutional convention in session at Peking for some months to complete the draft of the remainder of the organic law, the Assembly decided to proceed immediately to the election of the first constitutional President. Accordingly the election was held on Oct. 6, and of the 20 candidates proposed Yuan Shih-kai was elected on the third ballot. Li Yuan-hung was elected Vice-President on the following day. On the inauguration of Yuan Shih-kai on Oct. 10 the Republic was formally recognized by those foreign powers which had withheld recognition from the provisional government. The President declared that China undertook to observe all treaties entered into and all obligations incurred under the Manchu regime and agreed to conform with established usage in the conduct of foreign relations.

The President and the National Assembly.—Within a month of his election Yuan Shih-kai took drastic and wholly unconstitutional measures to consolidate his Government and to sweep away all opposition to a constitution drawn in accordance with his wishes. On Nov. 4 he issued a mandate denouncing the Kuo-ming-tang for its complicity in the rebellion, ordering its dissolution, and expelling its representatives, 130 Senators and 220 Representatives, from the National Assembly. The President's *coup* had the effect of permanently suspending the Assembly, since a quorum was left in neither house. In its stead the Government formed an "administrative conference" of 71 nominated members, representing the President, the Cabinet, the nine ministries, the provinces, and Mongolia and Tibet, to act until the reorganization of parliament.

JAPAN

Politics.—Prince Katsura assumed the premiership on Dec. 17, 1912, with the Diet almost solidly united against him, as the nominee of the Elder Statesmen, concerning whose pretensions to overrule the will of the representative assembly, supported by the military party, the temper of the Diet had reached a crisis. His brief tenure of office was a period of violent political agitation. Uniting his Cabinet on a strong programme of fiscal reform, Prince Katsura undertook to secure the support of the hostile parties in the Diet by a recantation of his bureaucratic principles and an announcement of his conviction that Japan was ripe for a more popular form of government. But the Diet refused to believe in the sincerity of his new constitutionality. On the reassembly of the Diet on Feb. 5, after the presentation of a budget affirming a policy of strict economy and administrative reform, a vote of censure was moved by the leader of the Constitutional party amid a demonstration exceedingly hostile to the Premier. The session was suspended by Imperial decree, and during five days of tumult Prince Katsura and his colleagues labored unsuccessfully to abate the opposition of the Seiyu-Kai. On the 10th an attack on the Premier in the streets developed into a considerable riot, and the following day Prince Katsura and his Cabinet resigned.

Admiral Gombei Yamamoto accepted the premiership on Feb. 12, but it was a week later before he reached a compromise with the Seiyu-Kai by which that party was to receive all the portfolios except Foreign Affairs, War, and Marine, and completed a Cabinet in which the portfolios were distributed as follows: Foreign Affairs, Baron Makimo; War, Baron Kikoshi; Marine, Baron Saito; Finance, Korekiyo Takahashi; Agricul-

ture and Commerce, Tatsuo Yamamoto; Justice, Masahiso Matsuda; Interior and Railways, Kei Hara; Education, Sajima Motoda; Communications, Gigin Okuda. The new Cabinet undertook to pursue the work of retrenchment and reform, while reserving for thorough consideration the needs of national defence. The Cabinet was strengthened in June by the retirement of Baron Kikoshi and the appointment as Minister of War of General Kusunose, an opponent of the militarist policy of the Choshiu clan.

Finance.—The budget for 1913-14, introduced for the third time on the reopening of the Diet on Feb. 27, balanced revenue and expenditure at $293,400,000, an increase of $2,400,000 over the estimates of the preceding year. Baron Takahashi forecasted a reduction of the income tax through administrative reforms expected to save about $25,000,000 annually.

COMMERCE OF THE PRINCIPAL COUNTRIES OF THE WORLD

	Year	Imports of Merchandise	Exports of Merchandise	Imports from United States[1]	Exports to United States[1]
Argentina	1912	$371,384,000	$463,578,000	$51,170,397	$34,007,864
Australia	1912	372,206,000	310,792,000	41,050,329	11,748,556
Austria-Hungary	1912	722,030,000	554,973,000	24,048,325	18,212,467
Belgium	1912	899,472,000	753,001,000	62,553,352	42,648,251
Bolivia	1911	23,268,562	33,052,469	992,527	9,829
Brazil	1912	308,409,000	363,274,000	40,591,519	132,957,326
Bulgaria	1910	34,230,000	24,907,000	204,033	578,198
Canada	1913	675,428,168[2]	393,232,057[2]	376,162,489	120,851,025
Chile	1912	122,076,000	139,878,000	15,303,738	22,401,492
China	1912	350,906,000	274,822,000	19,799,556	34,147,181
Colombia	1911	18,109,000	22,376,000	6,685,010	14,284,781
Costa Rica	1912	10,079,307	9,964,004	3,615,568	3,777,296
Cuba	1912	125,902,241	172,978,328	65,228,061	137,890,004
Denmark	1911	189,074,000	143,821,000	15,942,678	3,467,351
Dominican Republic	1911	6,950,000	11,005,000	5,314,096	4,186,414
Ecuador	1910	8,018,000	13,657,000	2,311,861	3,007,285
Egypt	1912	128,062,035	170,900,869	1,421,146	20,080,161
France	1912	1,534,515,000	1,280,816,000	155,212,669	133,933,485
Germany	1912	2,544,557,000	2,131,718,000	330,450,830	186,042,644
Great Britain	1912	3,623,794,000	2,371,073,000	606,975,989	312,934,838
Greece	1912	29,735,000	27,989,000	966,136	3,739,559
Guatemala	1911	6,514,000	10,982,000	3,579,830	2,717,378
Haiti	1912	9,875,575	18,734,275	7,246,057	841,786
Honduras	1912	2,268,329[4]	1,472,543[4]	2,682,020[3]	3,043,409
India (British)	1912	522,389,000	748,503,000	14,868,671	59,283,163
Italy	1912	695,592,000	462,456,000	73,874,013	51,817,947
Japan	1912	307,844,000	261,258,000	57,519,654	87,418,042
Korea	1912	33,423,493	10,450,837	1,363,258	8,575
Liberia	1909	1,048,000	955,000	101,548	2,117
Mexico	1912	93,021,732	84,421,000	55,029,708	76,767,931
Netherlands	1912	1,434,231,000	1,244,499,000	110,332,134	37,072,289
New Zealand	1912	101,933,624	105,741,546	8,474,765	3,078,805
Nicaragua	1910	2,864,000	4,556,000	2,575,031	1,354,492
Norway	1912	135,671,000	87,084,000	8,059,945	8,381,489
Panama	1911	9,897,000	2,863,000	24,724,538	4,278,823
Paraguay	1911	6,306,000	4,700,000	123,740	13,485
Persia	1912	66,801	582,657	118,487	1,632,807
Peru	1912	25,027,814	45,878,004	5,964,619	10,614,221
Portugal	1912	74,639,488	34,324,973	2,778,793	7,377,810
Roumania	1910	79,075,000	118,985,000	970,741	338,921
Russia	1912	532,768,000	734,905,000	27,315,137	28,346,868
Finland	1911	85,750,000	61,277,000	2,602,549	161,990
Salvador	1912	6,774,859	8,936,795	2,626,698	1,510,573
Servia	1911	22,227,000	22,565,000	16,779	1,123,635
Siam	1912	27,354,000[5]	31,653,000[5]	456,417	85,090
Spain	1912	189,029,000	188,966,000	31,671,556	22,221,201
Sweden	1912	198,320,000	192,960,000	10,504,151	10,452,650
Switzerland	1912	381,966,000	262,020,000	853,192	23,305,201
Turkey	1911	187,238,298	111,741,662	3,170,896	20,516,102
United States	1912	1,653,265,000[6]	2,170,320,000	.....	.....
Philippines	1912	54,550,000[6]	50,320,000	24,685,931	22,437,356
Uruguay	1912	49,380,000	48,455,000	7,322,726	3,476,533
Venezuela	1912	20,569,000	25,261,000	5,724,002	11,551,691

[1] Calendar year 1912. [2] Fiscal year ending March 31, 1913. [3] Honduras and British Honduras. [4] Honduras only. [5] Year ending March 31,1912. [6] Year ending June 30, 1912.

V. THE NATIONAL ADMINISTRATION

THE PRESIDENT AND VICE-PRESIDENT

President.—Woodrow Wilson, Democrat, was inaugurated twenty-eighth President of the United States on March 4, succeeding William Howard Taft, Republican, defeated for reëlection in the election of Nov. 5, 1912.

Woodrow Wilson was born at Staunton, Va., on Dec. 28, 1856, the son of the Rev. Joseph R. Wilson, a distinguished scholar and clergyman of the Presbyterian Church of the South. His boyhood days were spent in Augusta, Ga., at Columbia, S. C., and Wilmington, N. C., where he prepared for college with private tutors and at the schools of these places. In 1874 he entered Davidson College, North Carolina, remained one year, and in the fall of 1875 went to Princeton College, from which he was graduated in the class of 1879. Following his graduation he entered the University of Virginia, Charlottesville, Va., as a law student, and was graduated in 1881. For two years he practiced law at Atlanta, Ga. In 1883 to 1885 he did graduate work at the Johns Hopkins University in political economy and history. From 1885 to 1888 he was professor of history and political economy at Bryn Mawr College, and from 1888 to 1890, professor in the same branches at Wesleyan University. In June, 1890, he was elected professor of jurisprudence and political economy at Princeton University; on the division of the department in 1895 he was assigned to the chair of jurisprudence. In 1897 he was promoted to the McCormick professorship of jurisprudence and politics. On Aug. 1, 1902, Mr. Wilson became president of the university. He resigned both that office and his professorship on Oct. 20, 1910, immediately after his nomination for Governor of New Jersey, to which office he was elected on Nov. 8, 1910, by a plurality of 49,056 votes for the term Jan. 17, 1911, to Jan. 14, 1914. This office he resigned on March 1, 1913. He is author of the following works: *Congressional Government*, 1885; *The State—Elements of Historical and Practical Politics*, 1889; *Division and Reunion*, 1893; *An Old Master, and Other Political Essays*, 1893; *Mere Literature and Other Essays*, 1896; *Life of George Washington*, 1896; *History of the American People*, 1902; and *Constitutional Government in the United States*, 1908.

The President and Vice-President are elected for terms of four years by the state Electoral Colleges, whose membership is based on the Congressional apportionment. This apportionment is revised after each decennial census, as shown in the table in the YEAR BOOK for 1912, p. 159. The official figures of the popular and electoral votes in the elections of 1908 and 1912 are given on the following page. The salary of the President is $75,000, with an allowance of $25,000 for traveling expenses.

Secretary to the President.—The Secretary to the President is Joseph Patrick Tumulty, whose appointment was announced on Feb. 3.

Joseph Patrick Tumulty was born in Jersey City, N. J., May 5, 1879. He was educated in St. Bridget's parochial school and St. Peter's College, Jersey City, receiving the degree of B.A. in 1899. After three years' study in attorneys' offices he was admitted to the bar, and in 1904 entered the legal partnership of Tumulty and Cutley. In 1906 Mr. Tumulty was elected to the New Jersey House of Assembly. At the end of his term in 1910 he became private secretary to Governor Wilson. Two years later Mr. Wilson appointed him clerk of the Supreme Court of New Jersey, but he continued to serve the Governor as secretary until Mr. Wilson's resignation on March 1. In announcing his choice of Mr. Tumulty as Secretary to the President on Feb. 3, the President-elect made the sole exception to his rule of silence on prospective appointments.

A clause in the General Deficiency Appropriation Act approved on March 4 continues the salary of the Secretary to the President at $7,500 per year, to which it was raised from the statutory amount of $6,000 in 1911 at the request of President Taft. President Taft's Secretary was Charles W. Hilles, now chairman of the Republican National Committee.

VOTE FOR PRESIDENT, 1908 AND 1912

State	1908				1912						
	Taft, Republican		Bryan, Democrat		Wilson, Democrat		Roosevelt, Progressive		Taft, Republican		Debs, [So-] cialist,
	Electoral	Popular	Electoral	Popular	Electoral	Popular	Electoral	Popular	Electoral	Popular	Popular
Alabama	....	25,308	11	74,374	12	82,438	....	22,680	....	9,732	3,029
Arizona	....	.....	....	.....	3	10,324	....	6,949	....	3,021	3,163
Arkansas	....	56,760	9	87,015	9	68,838	....	21,673	....	24,467	8,153
California	10	214,398	....	127,492	2	283,436	11	283,610	....	3,914	79,201
Colorado	....	123,700	5	126,644	6	114,232	....	72,306	....	58,386	16,418
Conn	7	112,915	....	68,255	7	74,561	....	34,129	....	68,324	10,056
Delaware	3	25,014	....	22,071	3	22,631	....	8,886	....	15,997	556
Florida	....	10,654	5	31,104	6	36,417	....	4,535	....	4,279	4,806
Georgia	....	41,692	13	72,413	14	93,076	....	21,980	....	5,191	1,026
Idaho	3	52,621	....	36,162	4	33,921	....	25,527	....	32,810	11,960
Illinois	27	629,929	....	450,795	29	405,048	.....	386,478	....	253,593	81,278
Indiana	15	348,993	....	338,262	15	281,890	....	162,007	....	151,267	36,931
Iowa	13	275,210	....	200,771	13	185,325	....	161,819	....	119,805	16,967
Kansas	10	197,216	....	161,209	10	143,663	....	120,210	....	74,845	26,779
Kentucky	....	235,711	13	244,092	13	219,584	....	102,766	....	115,512	11,647
Louisiana	....	8,958	9	63,568	10	60,971	....	9,323	....	3,834	5,249
Maine	6	66,987	....	35,403	6	51,113	....	48,495	....	26,545	2,541
Maryland	2	116,513	6	115,908	8	112,674	....	57,789	....	54,936	3,996
Mass	16	265,966	....	155,543	18	173,408	....	142,228	....	155,948	12,616
Michigan	14	335,580	....	175,771	....	150,751	15	214,584	....	152,244	23,211
Minnesota	11	195,843	....	109,401	....	106,426	12	125,856	....	64,334	27,505
Mississippi	....	4,363	10	60,287	10	57,227	....	3,645	....	1,595	2,061
Missouri	18	347,203	....	346,574	18	330,746	....	124,371	....	207,821	28,466
Montana	3	32,333	....	29,326	4	27,941	....	22,456	....	18,512	10,885
Nebraska	....	126,997	8	131,099	8	109,008	....	72,614	....	54,029	10,174
Nevada	....	10,775	3	11,212	3	7,986	....	5,620	....	3,196	3,313
New Hamp	4	53,149	....	33,655	4	34,724	....	17,794	....	32,927	1,980
New Jersey	12	265,326	....	182,567	14	170,282	....	145,409	....	88,834	15,900
New Mex	....	.....	....	.....	3	22,139	....	8,347	....	17,900	2,859
New York	39	870,070	....	667,468	45	655,475	....	390,021	....	455,428	63,381
No. Car	....	114,937	12	136,995	12	144,507	....	69,667	....	29,139	117
No. Dak	4	57,680	....	32,885	5	29,555	....	25,726	....	23,090	6,966
Ohio	23	572,312	....	502,721	24	424,834	....	229,807	....	278,168	90,144
Oklahoma	....	110,474	7	122,363	10	119,156	....	[1]	....	90,786	41,674
Oregon	4	62,530	....	38,049	5	47,064	....	37,600	....	34,673	13,343
Penn	34	745,779	....	448,778	....	395,619	38	447,426	....	273,305	80,915
R. Island	4	43,942	....	24,706	5	30,412	....	16,878	....	27,703	2,049
So. Car	....	3,965	9	62,290	9	48,357	....	1,293	....	536	164
So. Dak	4	67,536	....	40,266	....	48,942	5	58,811	....	[2]	4,662
Tennessee	....	118,324	12	135,608	12	130,335	....	53,725	....	59,444	3,492
Texas	....	65,666	18	217,302	20	219,489	....	28,530	....	26,745	24,896
Utah	3	61,028	....	42,601	....	36,579	....	24,174	4	42,100	9,023
Vermont	4	39,552	....	11,496	....	15,354	....	22,132	4	23,332	928
Virginia	....	52,573	12	82,946	12	90,332	....	21,777	....	23,288	820
Wash	5	106,062	....	58,691	....	86,840	7	113,698	....	70,445	40,134
West Va	7	137,869	....	111,418	8	113,046	....	78,977	....	56,667	15,336
Wisconsin	13	247,747	....	166,632	13	164,228	....	62,460	....	130,695	33,481
Wyoming	3	20,846	....	14,918	3	15,310	....	9,232	....	14,560	2,760
Total	321	7,679,006	162	6,409,106	435	6,286,214	88	4,126,020	8	3,483,922	897,011
Plurality	159	1,269,900	....	.....	347	2,160,194	....	.....	....	.....	.....

NOTE.—In 1908 there were cast for Debs (Socialist), 420,820 votes; for Chafin (Prohibition), 252,683; for Hisgen (Independence League), 83,562; for Watson (Populist), 28,131; for Gillhaus (Socialist-Labor), 13,825. In 1912 there were cast for Chafin (Prohibitionist), 208,923 votes; for Reimer (Socialist-Labor), 29,079. The total vote in 1908 was 14,887,133; in 1912, 15,031,169; these figures do not include blank or void ballots or scattering votes for names not appearing on any electoral ticket.

[1] Roosevelt electors not on ballot.

[2] Taft electors not on ballot.

Vice-President.—Thomas Riley Marshall, Democrat, was inaugurated Vice-President of the United States on March 4.

Thomas Riley Marshall was born at North Manchester, Ind., March 14, 1854. He was graduated from Wabash College in 1873, and two years later was admitted to the bar. Mr. Marshall practiced law from 1875 to 1909 at Columbia City, Ind. In 1908 he was elected Governor of Indiana by a Democratic majority of about 15,000 for the term expiring on Jan. 1, 1913.

The Vice-President presides over the Senate, with no vote except in case of a tie. His salary is $12,000. During the third session of the Sixty-second Congress the office was vacant, through the death of James Schoolcraft Sherman on Oct. 30, 1912. The functions of the office were exercised alternate fortnights by two Presidents *pro tempore* of the Senate, Senators Augustus O. Bacon (Ga.) and Jacob M. Gallinger (N. H.). The present President *pro tempore*, who presides in the absence of the Vice-President, is Senator James P. Clarke (Ark.).

EXECUTIVE DEPARTMENTS

Ten Cabinet officers, constituting the President's advisory council, each in charge of one of the great Departments of the Government, are nominated by the President and confirmed by the Senate, for a term subject to the President's pleasure. The tenth Department, the Department of Labor, was created in 1913 by Act of Congress approved March 4 (see *infra;* and I, *American History*). The salary of the Cabinet officers is $12,000 each.

The terms of the members of President Taft's Cabinet expired on March 4. The members of the present Cabinet were nominated by the President and confirmed by the Senate on March 5. By Act of Congress, in the case of vacancy in office of President through the death or removal of both President and Vice-President, the Cabinet officers succeed to the Presidency in the order indicated below.

Department of State

Secretary of State.—William Jennings Bryan (Neb.) took the oath of office as Secretary of State on March 5, 1913, succeeding Philander Chase Knox (Pa.).

William Jennings Bryan was born in Salem, Ill., March 19, 1860. He was graduated from Illinois College, Jacksonville, Ill., in 1881, and three years later received the degree of A.M. In 1883 he was graduated with the degree of LL.B. from Union College of Law, Chicago, was admitted to the bar, and began the practice of law at Jacksonville, where he remained until his removal to Lincoln, Neb., in 1887.

Mr. Bryan was elected to Congress in 1890 to represent a district normally overwhelmingly Republican, was re-elected in 1892, but was defeated in 1894. During his two terms in the House of Representatives (52d and 53d Congresses, 1891-5), he was a member of the Ways and Means Committee, opposed with vigor the McKinley Tariff and the repeal of the silver purchase clause of the Sherman Act, and by his advocacy of the free and unlimited coinage of silver at the ratio of 16 to 1, became the recognized leader of the "silver wing" of the Democratic party. In 1893 he received the Democratic vote in the Nebraska legislature for U. S. Senator, and the next year was nominated for the same office in the Democratic convention, but was defeated in the legislature. After his retirement from Congress he edited for two years (1894-6) the Omaha *World-Herald*.

In the Democratic National Convention of 1896, Mr. Bryan's eloquence in the famous "cross of gold" speech, advocating the adoption of a free-coinage plank, secured him the nomination for President. After a remarkable personal campaign, he was defeated by William McKinley by 271 electoral votes to 176. In 1900 he was nominated by the Democratic, Populist, and Silver Republican parties, and was again defeated by McKinley, on the issues of free coinage and "imperialism," by 292 electoral votes to 155. After this second defeat Mr. Bryan founded, in January, 1901, his weekly political magazine, the *Commoner*. His leadership was for a time obscured, but in 1908 he was again nominated for President by the Democratic party, and suffered, at the hands of Wm. H. Taft, a third defeat, by 321 electoral votes to 162, this time on the issue of the trust question. He remained, however, a very important factor in national politics, and his support in the Democratic National Convention of 1912 secured the nomination for Woodrow Wilson (*A. Y. B.*, 1912, p. 18).

Charged with negotiations relating to foreign affairs.

Assistant Secretary.—John E. Osborne, Wyo. $5,000.

Huntington Wilson (Ill.), Assistant Secretary of State, resigned on March 19 because of President Wilson's abrupt

reversal of policy in regard to the Chinese loan (see I, *American History;* and III, *International Relations*). Mr. Osborne, whose nomination was confirmed on April 21, was Governor of Wyoming 1893-97 and Representative in Congress 1897-99.

Second Assistant Secretary.—Alvey A. Adee, D. C. $4,500.

Third Assistant Secretary.— ———— ————. $4,500.

Dudley Field Malone (N. Y.) was appointed Third Assistant Secretary of State in 1913, succeeding Chandler Hale (Me.), resigned. He was confirmed on Nov. 13 as Collector of Customs at New York. His successor has not been appointed.

Director of the Consular Service.—Wilbur J. Carr, N. Y. $4,500.

Counselor.—John Bassett Moore, N. Y. $6,000.

Mr. Moore was formerly professor of international law at Columbia University. He was confirmed on April 21, succeeding Chandler P. Anderson (N. Y.), resigned.

Solicitor.—Joseph W. Folk, Mo. $5,000.

Mr. Folk was Governor of Missouri, 1905-9. He was confirmed on Sept. 22, succeeding Joshua R. Clark (Utah), who resigned March 4.

Bureau of Accounts.—Chief, William McNeir. $2,300.

Mr. McNeir was appointed in 1913, succeeding Thomas Morrison, resigned.

Bureau of Appointments.—Chief, M. M. Shand, N. J. $2,100.

Bureau of Citizenship.—Chief, Richard W. Flournoy, Jr., Md. $2,100.

Consular Bureau.—Chief, Herbert C. Hengstler, Ohio. $2,250.

Diplomatic Bureau.—Chief, Sydney Y. Smith, D. C. $2,250.

Bureau of Indexes and Archives.—Chief, John R. Buck, Me. $2,100.

Bureau of Rolls and Library.—Chief, John A. Tonner, O. $2,100.

Division of Latin American Affairs.—Chief, Boaz W. Long. $4,500.

Mr. Long was appointed in 1913, succeeding Wm. T. S. Doyle, resigned.

Division of Far-Eastern Affairs.—Chief, Ransford S. Miller, N. Y. $4,500.

Division of Near-Eastern Affairs.—Asst. Chief, Albert H. Putney. $2,500.

Mr. Putney was appointed in 1913, the office being vacant.

Division of Information. — Chief, John H. James. $3,000.

Mr. James was appointed in 1913, succeeding Swelton L. Brown, resigned.

Treasury Department

Secretary of the Treasury.—William Gibbs McAdoo (N. Y.) took the oath of office as Secretary of the Treasury on March 6, 1913, succeeding Franklin MacVeagh (Ill.).

William Gibbs McAdoo was born near Marietta, Ga., Oct. 31, 1863. He entered the University of Tennessee, but left in 1882, at the end of his junior year, to become deputy clerk of the U. S. Circuit Court for the Southern Division, Eastern District of Tennessee. He was admitted to the bar in 1885, and practiced law in Chattanooga until his removal to New York in 1892. Here he formed with Wm. McAdoo a partnership for the practice of law under the firm name of McAdoo and McAdoo, which subsisted until 1903. In 1902 Mr. McAdoo organized the New York and New Jersey Railroad Company, which constructed under the Hudson River between New York and Jersey City the tunnel system now owned and operated by the Hudson and Manhattan Railroad Co. Of the latter company he was president from its formation in 1903 to his retirement to enter the Cabinet in 1913. Mr. McAdoo was one of the earliest supporters of Mr. Wilson for the Presidency, and, as acting chairman of the Democratic National Committee, took a very prominent part in the campaign of 1912.

Charged with management of the national finances. He prepares plans for improvement of the revenue and support of the public credit; superintends collection of the revenue; grants warrants for all moneys paid from and into the Treasury; controls construction of public buildings; coinage and printing of money; and the administration of the life-saving, revenue cutter, and the public health service.

Assistant Secretaries.—Charles S. Hamlin, Mass., in charge of customs; John Skelton Williams, Va., in charge of fiscal bureaus; Byron R. Newton, N. Y., in charge of public buildings and miscellaneous. $5,000 each.

Mr. Hamlin was Assistant Secretary of the Treasury in Cleveland's second term; he was confirmed July 28, succeeding James F. Curtis (Mass.), resigned Aug. 1. Mr. Williams, a prominent banker of Richmond, Va., was confirmed March 17, succeeding Robert O. Bailey, D. C., resigned. Mr. Newton, formerly private secretary to Mr. McAdoo, was confirmed Sept. 29, succeeding Sherman P. Allen (Vt.), resigned.

Supervising Architect.—Oscar Wenderoth, $6,000. Charged with superintending the construction and repair of public buildings.

Engraving and Printing.—Chief of Bureau, Joseph E. Ralph, Ill., $6,000. Produces all the securities and similar work of the Government printed from steel plates.

Secret Service.—Chief William J. Flynn, New York. $4,000. Charged with detection of counterfeiting, and similar frauds on the Government.

Comptroller of the Treasury.—George E. Downey, Ind. $6,000. Construes the laws relating to appropriations and methods of rendering and stating accounts.

Mr. Downey was confirmed May 6, succeeding Robert J. Tracewell (Ind.), resigned.

Treasurer of the United States.—John Burke, N. D. $8,000. Charged with the receipt and disbursement of

all public moneys deposited in the Treasury and sub-treasuries and in national bank depositories.

Mr. Burke was Governor of North Dakota 1907-13; he was confirmed March 17, succeeding Carmi A. Thompson (O.), resigned.

Comptroller of the Currency.— ———. $5,000. Has supervision of the national banks, their examination and reports; the preparation and issue of national bank circulation; the redemption and destruction of national bank notes.

Lawrence O. Murray (N. Y.) resigned as Comptroller of the Currency in April; no appointment has been made, the duties of the office being exercised by Thomas P. Kane, Deputy Comptroller.

Internal Revenue.—Commissioner William H. Osborn, N. C. $6,000. General supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue laws.

Mr. Osborn was confirmed April 24, succeeding Royal E. Cabell (Va.), resigned.

The Mint.—Director, George E. Roberts, Ia. $5,000. General supervision of the mints and assay offices.

Public Health Service. — Surg.-General Rupert Blue. $6,000. Charged with the framing and enforcement of regulations for the prevention of the introduction and spread of contagious diseases; supervision of the quarantine service of the United States, and of the marine hospitals.

War Department

Secretary of War.—Lindley Miller Garrison, N. J., took the oath of office as Secretary of War on March 5, 1913, succeeding Henry Lewis Stimson (N. Y.).

Lindley Miller Garrison was born in Camden, N. J., Nov. 28, 1864. After graduation from preparatory school, followed by a year in the Harvard Law School, he entered the service of a law firm in Philadelphia and completed his legal studies in the University of Pennsylvania. In 1886 he was admitted to the Pennsylvania bar, and began the practice of law in Philadelphia. Two years later he was admitted to the New Jersey bar as an attorney, and as a counselor in 1892. Mr. Garrison practiced law in Jersey City until 1904, the last six years as a member of the firm of Garrison, McManus and Enright, which he founded in 1898. In 1904 he was appointed to the office of vice-chancellor, and was reappointed on the expiry of his term in 1911, holding the office until he entered the Cabinet in 1913.

Charged with supervision of national defense, and army expenditures.

Assistant Secretary of War.—Henry S. Breckinridge, Ky. $5,000.

Mr. Breckinridge was confirmed on April 28, succeeding Robert Shaw Oliver (N. Y.), resigned.

The General Staff.—Chief, Maj.-Gen. Leonard Wood. Charged with preparation of plans for the national defense, and the promotion of the efficiency of the Army.

The chiefs of the military bureaus are as follows:

Adjutant-General.—Brig.-Gen. George Andrews. $8,000.

Inspector-General.—Brig.-Gen. E. A. Garlington. $6,000.

Judge-Advocate-General. — Brig.-Gen. E. H. Crowder. $6,000.

Quartermaster-General.—Brig.-Gen. J. B. Aleshire. $6,000.

In November, 1912, the offices of the Paymaster-General and the Commissary-General were consolidated with that of the Quartermaster-General; General Aleshire was continued in charge of the enlarged department (see also XII, *The Army*).

Surgeon-General.—Brig.-Gen. G. H. Torney. $6,000.

Chief of Engineers.—Brig.-Gen. Dan C. Kingman. $6,000.

General Kingman succeeded Gen. William H. Bixby in 1913.

Chief of Ordnance.—Brig.-Gen. William Crozier. $6,000.

Chief Signal Officer. — Brig.-Gen. George P. Scriven. $6,000.

General Scriven succeeded Gen. James Allen in 1912.

Chief of Bureau of Insular Affairs.—Brig.-Gen. Frank McIntyre. $6,000.

Board of Engineers for Rivers and Harbors.—Col. William M. Black, president. A permanent body which investigates in their engineering and economic aspects all surveys and river and harbor improvements proposed by Congress.

Department of Justice

Attorney-General.—James Clark McReynolds took the oath of office as Attorney-General on March 5, 1913, succeeding George Woodward Wickersham (N. Y.).

James Clark McReynolds was born in Elkton, Ky., July 23, 1862. He was graduated from Vanderbilt University with the degree of B.S. in 1882, and from the law department of Virginia two years later. From his admission to the bar in 1884 until 1903 he practiced law in Nashville, Tenn., serving as professor in the law school of Vanderbilt University from 1900 to 1903. In 1903 Mr. McReynolds was appointed by President Roosevelt an assistant attorney-general of the United States. He resigned this office in 1907 and engaged in private practice in New York, but was retained by the Government as special assistant attorney-general in the anti-trust prosecution of the American Tobacco Company, which he brought to a successful conclusion in 1911.

Represents the United States in all legal matters.

Solicitor-General. — John William Davis, W. Va. $10,000. Charged with the business of the Government in the Supreme Court and in state courts.

Mr. Davis at the time of his appoint-

ment was a Representative from West Virginia; he was confirmed July 28, succeeding William M. Bullitt (Ky.), resigned.

Assistant to the Attorney-General.—George Carroll Todd, N. Y. $7,000. Charged with matters arising under the federal anti-trust and interstate commerce laws.

Mr. Todd was confirmed Aug. 4, succeeding James A. Fowler (Tenn.), resigned.

Assistant Attorneys-General.—There are seven Assistant Attorneys-General; salary $5,000 each.

Post Office Department

Postmaster-General.—Albert Sidney Burleson, Tex., took the oath of office as Postmaster-General on March 5, 1913, succeeding Frank Harris Hitchcock (Mass.).

Albert Sidney Burleson was born in San Marcos, Texas, June 7, 1863. He was educated in the Agricultural and Mechanical College of Texas, Baylor University, and the University of Texas, and admitted to the bar in 1884. From 1885 to 1890 he served as assistant city attorney of Austin, Texas, and from 1891 to 1898 as attorney of the twenty-sixth judicial district. In 1899 Mr. Burleson entered Congress, representing the Ninth District of Texas in the 55th and 56th Congresses (1899-1903), and the Tenth District in the 57th to 62d Congresses (1903-1913). He was reëlected in November, 1912, for his eighth consecutive term, but resigned to enter the Cabinet. Mr. Burleson's most distinguished services in Congress were in connection with the House Committees on Agriculture and on Appropriations.

Has direction and management of the Post Office Department.

First Assistant Postmaster-General.—Daniel C. Roper, S. C. Charged with postmasters' appointments; salaries and allowance; city delivery service.

Mr. Roper was confirmed March 13, succeeding Charles P. Grandfield (Mo.), resigned.

Second Assistant Postmaster-General.—Joseph Stewart, Mo. $5,000. Charged with railway adjustments, miscellaneous transportation, foreign mails, railway mail service, inspection, equipment.

Third Assistant Postmaster-General.—Alexander M. Dockery, Mo. $5,000. Charged with financial system, stamps, money orders, registered mails, classification of domestic mail matter, redemption, postal savings.

Mr. Dockery was confirmed March 13, succeeding James J. Britt (N. C.), resigned.

Fourth Assistant Postmaster-General.—James I. Blakslee, Pa. $5,000. Charged with rural mails, supplies, dead letters, post route maps.

Mr. Blakslee was confirmed March 13, succeeding P. V. DeGraw (Pa.), resigned.

Navy Department

Secretary of Navy.—Josephus Daniels, N. C., took the oath of office on March 5, 1913, succeeding George von Lengerke Meyer (Mass.).

Josephus Daniels was born in Washington, N. C., May 18, 1862. After graduation from the Wilson, N. C., Collegiate Institute, he studied law and was admitted to the bar in 1885, but never practiced. Mr. Daniels began editorial work in 1880 as editor of the Wilson *Advance*, and five years later became editor of the *State Chronicle* of Raleigh, N. C. In 1893, under Cleveland's second administration, he was appointed Chief Clerk of the Department of the Interior, but resigned in 1895 to reënter the newspaper field as owner and editor of the Raleigh *News and Observer*, with which he had effected, the previous year, a consolidation of the *State Chronicle* and the *North Carolinian*. Under his direction the *News and Observer* has become one of the most influential Democratic organs of the South. Mr. Daniels has represented North Carolina on the Democratic National Committee for sixteen years, and has taken a prominent part in every presidential campaign since 1896. He was one of the earliest supporters of Mr. Wilson for the Presidency, and in 1912 directed the publicity work of the Democratic campaign.

Charged with direction of the Navy and superintendence of construction, equipment, and employment of vessels of war.

Assistant Secretary.—Franklin D. Roosevelt, N. Y. $5,000.

Mr. Roosevelt at the time of his appointment was a member of the New York State Senate; he was confirmed March 17, succeeding Beekman Winthrop (N. Y.), resigned.

General Board of the Navy.—The General Board is advisory to the Secretary of the Navy, and is composed of the following officers:

Admiral of the Navy, George Dewey, president; Rear-Adm., C. E. Vreeland; Rear-Adm., W. H. H. Southerland; Rear-Adm., A. M. Knight, president, Naval War College; Rear-Adm., B. A. Fiske; Capt. A. G. Winterhalter; Capt. T. S. Rodgers; Capt. H. S. Knapp; Capt. John Hood; Capt. W. R. Shoemaker; Commander E. H. Campbell, secretary.

Bureau of Yards and Docks.—Chief, Civil Engineer H. R. Stanford. $6,000. Charged with the construction and maintenance of docks and naval buildings.

Bureau of Navigation.—Chief, Rear-Adm. Victor Blue. $6,000. Charged with the education and supervision of line officers and of enlisted men.

Admiral Blue succeeded Rear-Adm. Philip Andrews in 1913.

Bureau of Ordnance.—Chief, Rear-Adm. Joseph Strauss. $8,000. Charged with supervision of the Torpedo Station, magazines on shore, and with the

manufacture of explosives, arms and equipment.

Adm. Strauss succeeded Rear-Adm. N. C. Twining in 1913.

Bureau of Construction and Repair.—Chief Constructor, Richard M. Watt. $6,000. Charged with the design, construction, care, and repair of ships.

Bureau of Steam Engineering.—Engineer-in-Chief, Rear-Adm. Robert S. Griffin. $6,000. Charged with designing, building and repairing steam machinery for naval ships.

Adm. Griffin succeeded Rear-Adm. Hutch I. Cone in 1913.

Bureau of Supplies and Accounts.—Paymaster-Gen. Thomas J. Cowie, $6,000. Charged with the supply of funds for disbursing officers, and the purchase of all naval supplies.

Bureau of Medicine and Surgery.—Surgeon-General, Charles F. Stokes. $6,000. Control of naval hospitals and hospital ships.

Judge-Advocate-General.—Capt. Ridley McLean. $5,000. Charged with supervision of all legal aspects of the Navy Department. Solicitor, Graham Egerton. $4,000.

Capt. McLean succeeded Capt. Robert L. Russell in 1913. Mr. Egerton succeeded Henry M. Butler.

Marine Corps.—Commandant, Major-Gen. William P. Biddle. $8,000.

Department of the Interior

Secretary of the Interior.—Franklin Knight Lane, Cal., took the oath of office as Secretary of the Interior on March 5, 1913, succeeding Walter Lowrie Fisher (Ill.).

Franklin Knight Lane was born in Prince Edward Island, Canada, July 15, 1864, but received his education in California, whither his parents removed when he was a child. He was graduated from the University of California in 1886, and on his admission to the bar three years later, began the practice of law in San Francisco. From 1897 to 1902 he was corporation counsel of San Francisco. In 1902 Mr. Lane was the Democratic candidate for Governor of California, and a year later received the Democratic vote of the legislature for U. S. Senator. He was appointed a member of the Interstate Commerce Commission by President Roosevelt in 1905, and from Jan. 13, 1913, until his retirement to enter the Cabinet, acted as its chairman.

Charged with patents, pensions, public lands and parks, education, Indian affairs, geological surveys, reclamation of arid lands, and mines.

First Assistant Secretary.—Andrieus A. Jones, N. M. $6,000.

Mr. Jones was confirmed May 29, succeeding Samuel Adams (Ill.), resigned.

General Land Office.—Commissioner, Clay Tallman, Nev., $5,000. Charged with the survey, management and disposition of the public lands.

Mr. Tallman was confirmed June 5, succeeding Fred Dennett (N. D.), resigned.

Patent Office.—Commissioner, Thomas Ewing, N. Y. $5,000. Administration of the patent laws, and supervision of the registration of trade-marks.

Mr. Ewing was confirmed July 10, succeeding Edward B. Moore (Mich.), resigned.

Pension Office.—Commissioner, Gaylord M. Saltzgaber, Ohio. $5,000. Supervision of adjudication of claims arising under laws granting Army or Navy service pensions.

Mr. Saltzgaber was confirmed May 20, succeeding James L. Davenport (D. C.), resigned.

Bureau of Indian Affairs.—Commissioner, Cato Sells, Tex. $5,000. Has charge of the Indian tribes of the United States (exclusive of Alaska).

Mr. Sells was confirmed June 2; the office had been vacant since 1912.

Bureau of Education.—Commissioner, Philander P. Claxton, Tenn. $5,000. Collects statistics and general information regarding education; has charge of the schools for native Alaskan children; and administers the endowment fund for agricultural colleges and mechanical arts.

Geological Survey.—Director, George Otis Smith, Me. $6,000. Charged with classification of the public lands and examination of the geologic structure, mineral resources, and the mineral products of the national domain.

Reclamation Service.—Director, Frederick H. Newell. $7,500. Charged with the survey, construction, and operation of the reclamation and irrigation works in arid states, authorized by the act of June 17, 1902.

Bureau of Mines.—Director, Joseph A. Holmes, N. C. $6,000. To promote the mining industry of the United States, foster the safety of miners, and give attention to the treatment of ores and the use of explosives.

Department of Agriculture

Secretary of Agriculture.—David Franklin Houston, Mo., took the oath of office as Secretary of Agriculture on March 6, 1913, succeeding James Wilson (Iowa).

David Franklin Houston was born in Monroe, N. C., Feb. 17, 1866. After graduation from South Carolina College in 1887 and a year as graduate student and tutor in ancient languages in that institution, he was for three years (1888-91) superintendent of city schools of Spartanburg, S. C. The years 1891-1894 Mr. Houston spent in graduate study in political science in Harvard University, receiving the degree of A.M. in 1892. He became adjunct professor of political science in the University of Texas in 1894, associate professor in 1897, and professor in 1900, and was elected dean of the faculty in 1899. Mr. Houston left the University of Texas in 1902 to become President of the Agricultural and Mechanical College of Texas, but returned as President in 1905. In 1908 he was appointed Chan-

cellor of Washington University, St. Louis, and resigned this post to enter the Cabinet. The degree of LL.D. has been conferred upon Mr. Houston by Tulane University and the University of Wisconsin.

Exercises supervision over agricultural industry, experiment stations, quarantine stations for imported cattle, inspection of foods and drugs, national forest reserves, and interstate game laws.

Assistant Secretary. — Beverly T. Galloway, Mo. $5,000.

Mr. Galloway was confirmed March 17, succeeding Willett M. Hays (Minn.), resigned; at the time of his appointment he was Chief of the Bureau of Plant Industry.

Weather Bureau.—Chief, Charles F. Marvin, D. C. $6,000. Charged with forecasting of weather for the benefit of agriculture, commerce and navigation.

The resignation of Willis L. Moore, Chief of the Weather Bureau since 1895, was accepted by President Wilson on March 22, to take effect on July 31. Immediately after his resignation charges were filed with the Secretary of Agriculture that the employees and funds of the Bureau had been improperly used to promote Prof. Moore's campaign for appointment as Secretary of Agriculture. After an investigation President Wilson on April 16 summarily removed him. Mr. Marvin, who has been chief of the instrument division for over 20 years, was confirmed July 31.

Bureau of Animal Industry.—Chief, A. D. Melvin, Ill. $5,000. Conducts inspection of animals and meat food products; investigates communicable diseases and their prevention, and the breeding and feeding of animals.

Bureau of Plant Industry.—Chief, William A. Taylor. $5,000. Charged with the improvement of crops by breeding and selection, and the introduction of new plants and seeds to different parts of the United States.

Mr. Taylor, formerly Assistant Chief of the Bureau, succeeded Beverly T. Galloway, appointed Assistant Secretary of Agriculture (see *supra*).

Forest Service.—Chief, Henry S. Graves. $5,000. Charged with the administration of the national forests, the investigation of forest problems and encouragement of protecting growing timber.

Bureau of Chemistry.—Chemist and Chief, Carl L. Alsberg. $5,000. Charged with the analysis of agricultural products and fertilizers, and the investigation of the composition and adulteration of foods and drugs.

Bureau of Soils.—Chief, Milton Whitney, Md. $3,500. Charged with investigating soils in their relations to climate and organic life.

Bureau of Entomology.—Chief, L. O. Howard, N. Y. $4,000. Charged with dissemination of information regarding injurious insects affecting forests, crops and fruits, and means of their elimination.

Bureau of Biological Survey.—Chief, Henry W. Henshaw, Mass. $3,000. Investigates the economic relations of animal life. Charged with enforcing the bird and game laws.

Bureau of Statistics.—Chief, Leon M. Estabrook. $3,000. Collects and collates agricultural statistics and issues crop reports and forecasts.

Victor H. Olmsted was suspended as Chief of the Bureau on June 18 for failure to preserve discipline, and later resigned.

Office of Experiment Stations.—Director, A. C. True, Conn. $4,000. Authorized to promote the interests of agricultural education and investigation.

Office of Public Roads.—Director, Logan W. Page, Mass. $3,000. Charged with investigating road making, road maintenance and road materials, and collecting information regarding systems of road management.

Department of Commerce

Secretary of Commerce.—William Cox Redfield, N. Y., took the oath of office as Secretary of Commerce on March 5, 1913, succeeding Charles Nagel (Mo.).

William Cox Redfield was born in Albany, N. Y., June 18, 1858. He was educated in the public schools of Pittsfield, Mass., whither his parents removed in 1867. In 1877 Mr. Redfield removed to New York, and six years later to Brooklyn, where he engaged in the manufacture of iron and steel forgings, tools, etc., with the corporation of J. H. Williams and Company. Mr. Redfield has held the offices of treasurer and president in this concern, of vice-president in the Warp Twisting-in Machine Company, and of president of the Sirocco Engineering Company, manufacturers of heating and ventilating apparatus. At the time of his appointment to the Cabinet he was vice-president of the American Blower Company, of Detroit, manufacturers of fans, blowers, engines, etc., and a director of the Equitable Life Assurance Society. He has been president of the American Manufacturers' Export Association since its organization in 1910. Mr. Redfield was Commissioner of Public Works of Brooklyn in 1902-3. In 1896 he ran for Congress unsuccessfully as nominee of the National Democratic party, but was elected to the 62d Congress (1911-13) from the Fifth District of New York as candidate of the Democratic and Independence League parties.

Charged with promoting commerce, mining, manufacturing, shipping, fisheries, and transportation.

This Department is the larger of the two into which the Department of Commerce and Labor was divided by the Act of March 4, 1913, creating a Department of Labor (see *infra*, and I, *American History*).

Assistant Secretary.—Edwin F. Sweet, Mich. $5,000.

Mr. Sweet was confirmed March 17, succeeding Benjamin S. Cable (Ill.), resigned.

Bureau of Corporations.—Commissioner, Joseph E. Davies, Wis. $5,000. Authorized to investigate the organization and conduct of any corporation or combination engaged in interstate or foreign commerce (except railroads).

Mr. Davies took the oath of office on May 17, succeeding Luther Conant (N. Y.), resigned; in 1912 he was Secretary of the National Democratic Committee.

Bureau of Foreign and Domestic Commerce.—Chief, Albertus H. Baldwin, Conn. $4,000. Charged with the collection and publication of statistics of foreign and domestic commerce, the development of manufactures and markets therefor, by the publication of information, and the investigation of matters affecting the commercial interest of the United States.

Bureau of Lighthouses.—Commissioner, George R. Putnam, Ia. $5,000. Charged with the administrative duties relating to lighthouses and protective signals.

Steamboat Inspection Service.—Supervising Inspector-General, George Uhler, Penn. $4,000. Charged with the inspection of vessels, the licensing of officers, and the administration of laws relating to steam vessels and their officers.

The Census Office.—Director, William J. Harris, Ga. $7,000 during decennial census period, $6,000 regular salary. The duty of the Census Office is to take, compile and publish the decennial census of the United States; the quinquennial census of agriculture and manufactures; the deaths in registration areas; the statistics of cotton ginned, and of cotton consumed; the annual statistics of cities; and to make such other statistical investigations as Congress may order.

Mr. Harris was confirmed June 26, succeeding E. Dana Durand (Cal.), resigned.

Coast and Geodetic Survey.—Superintendent, Otto H. Tittmann, Mo. $6,000. Charged with survey of coasts under the jurisdiction of the United States, and publication of charts covering these coasts.

Bureau of Fisheries.—Commissioner, Hugh M. Smith, D. C. $6,000. Charged with the propagation of useful food fishes, investigation of deep sea fishing grounds, and care of the Alaskan salmon fisheries and the Pribilof Islands seal herds.

Mr. Smith was confirmed May 1, succeeding George M. Bowers (W. Va.), resigned.

Bureau of Navigation.—Commissioner, Eugene T. Chamberlain, N. Y. $4,000. Charged with superintendence of the commercial marine, issue of licenses, and collection of tonnage taxes.

Bureau of Standards.—Director, Samuel W. Stratton, Ill. $6,000. Charged with comparing and testing standards used in scientific investigations, commerce and educational institutions, with standards adopted or recognized by the Government.

Department of Labor

Secretary of Labor.—William Bauchop Wilson, Pa., took the oath of office as first Secretary of Labor on March 5, 1913.

William Bauchop Wilson was born in Blantyre, Scotland, April 2, 1862. His parents emigrated to the United States in 1870 and settled at Arnot, Pa. The following year Mr. Wilson began working in the coal mines; thenceforth his education was obtained in irregular attendance at the public school. In 1873 he was admitted to the Mine Workers' Union and since early manhood has taken an active part in trade-union affairs. He was president of the Miners' Union of his district from 1888 to 1890, a member of the board which organized the United Mine Workers of America in 1890, and international secretary-treasurer of the United Mine Workers from 1900 to 1908. Since 1908 he has been engaged in farming at Blossburg, Pa. Mr. Wilson was an unsuccessful candidate for the Pennsylvania legislature in 1888, and for Congress in 1892, but was elected to the 60th, 61st, and 62d Congresses (1907-13) from the Fifteenth District of Pennsylvania.

Charged with the duty of fostering, promoting and developing the welfare of the wage earners of the United States.

This Department was created by Act of Congress approved March 4, 1913; the four bureaus which it comprises were transferred from the Department of Commerce and Labor (see I, *American History*).

Assistant Secretary.—Louis F. Post. $5,000.

Bureau of Immigration.—Commissioner-General, Anthony Caminetti, Cal. $5,000. Charged with administration of immigration laws. By the Act creating the Department of Labor, the Bureau of Immigration and Naturalization transferred thereto from the Department of Commerce and Labor was divided into two Bureaus, of Immigration and of Naturalization. Mr. Caminetti was confirmed as Commissioner-General of Immigration on June 6.

Bureau of Naturalization.—Commissioner, Richard K. Campbell. Charged with administration of the naturalization laws.

Mr. Campbell was the Chief of the Division of Naturalization in the Bureau of Immigration and Naturalization before the division of the Bureau (see *supra*).

Bureau of Labor Statistics.—Commissioner, Royal S. Meeker, N. J. $5,000. Charged with the duty of acquiring and diffusing information concerning labor in its relations to capital and means of promoting prosperity among the laboring classes.

By the Act of March 4, the name of the Bureau of Labor was changed to Bureau of Labor Statistics. Charles P. Neill (D. C.), whose term as Commis-

sioner of Labor expired Feb. 1, was reappointed by President Taft but failed of confirmation. He was again reappointed by President Wilson and confirmed on May 1. A few days later he resigned to enter the American Smelting and Refining Co. in charge of the labor department. Mr. Meeker, confirmed Aug. 11, was formerly professor of political economy in Princeton University.

Children's Bureau.—Chief, Julia C. Lathrop, Ill. $5,000. Charged with the investigation of all matters pertaining to the welfare of children and child life.

Independent Bureaus and Institutions

Smithsonian Institution. — Secretary, Charles D. Walcott. $7,500. Established 1846, under the terms of James Smithson's will, for the "increase and diffusion of knowledge among men." The former is accomplished by promoting original scientific research, and the latter by publication and lectures. Managed by a Board of Regents. It coöperates with the Government and national scientific bodies.

National Museum.—Under the same management. Charged with preserving and utilizing objects of art, ethnological collections, geological and mineralogical specimens belonging to the United States.

Pan-American Union.—Director-General, John Barrett, Ore. $5,000. Established for the purpose of developing closer relations of commerce and friendship between the twenty-one republics of the Western Hemisphere.

Interstate Commerce Commission.—Seven members, each receiving an annual salary of $10,000; appointed for terms of seven years, one retiring each year. Edgar E. Clark, Ia., chairman; Judson C. Clements, Ga.; Charles A. Prouty, Vt.; James S. Harlan, Ill.; Charles C. McChord, Ky.; Balthasar H. Meyer, Wis.; ——— ———; Secretary, George B. McGinty, salary, $5,000.

The term of Edgar E. Clark expired Dec. 31, 1912. He was reappointed by President Taft but not confirmed by the Senate of the 62d Congress. He was again reappointed by President Wilson and confirmed on March 5. Franklin K. Lane, appointed chairman of the Commission on Jan. 13, resigned on March 4 to become Secretary of the Interior, his place as chairman being taken by Mr. Clark. On Dec. 24 Mr. Clements was reappointed and confirmed for a further term of seven years. On March 7 John H. Marble, Secretary of the Commission, was confirmed to fill the vacancy. Mr. Marble died on Nov. 21; his successor has not been appointed.

Civil Service Commission.—Commissioners, John A. McIlhenny, La., President, $4,500; Charles M. Galloway, S. C., $4,000; Hermon W. Craven, Wash., $4,000. Charged with the conduct of competitive examinations of applicants for the classified civil service. Mr. McIlhenny became president of the Commission in 1913, succeeding J. C. Black (Ill.), resigned; Mr. Galloway and Mr. Craven were confirmed June 18; W. S. Washburn (N. Y.), resigned.

Government Printing Office.—Public Printer, Cornelius Ford, N. J. $5,500. Charged with the printing, press work, and binding of all Government publications of every description.

Mr. Ford, formerly New Jersey State President of the American Federation of Labor, was confirmed June 23, succeeding S. B. Donnelly (N. Y.), resigned.

Isthmian Canal Commission.—Chairman and Chief Engineer, Col. George W. Goethals, assisted by five army officers as commissioners. $15,000, inclusive of army pay. Secretary, Joseph Bucklin Bishop, N. Y. $5,000. Charged with the construction of the Panama Canal.

The Library of Congress.—Librarian, Herbert Putnam, Mass. $6,000. Primarily a reference library, composed of numerous collections, presented and bought. It is the third largest collection in the world. Under the jurisdiction of Congress.

Commission of Fine Arts.—Established 1910, to pass upon sites and plans for future buildings, monuments, etc., in the District of Columbia. No compensation, but actual expenses allowed. Chairman, Daniel C. French, N. Y., sculptor; Vice-Chairman, Frederick Law Olmstead, Mass., landscape architect; Thomas Hastings, N. Y., architect; Cass Gilbert, N. Y., architect; Edwin H. Blashfield, N. Y., painter; Pierce Anderson, Ill.; Charles Moore, Mich.; Secretary, Spencer Cosby, D. C.

THE SIXTY-SECOND CONGRESS

The Senate.—A complete list of the members of the Senate in the Sixty-second Congress at the close of 1911 was given in the Year Book for 1911 (pp. 203-4), and the changes which occurred in 1912 in the issue for 1912 (p. 156). The following changes occurred during January and February, 1913:

Joseph W. Bailey (Dem.), of Texas, resigned on Jan. 3; he was succeeded for the balance of the term expiring March 4 by R. M. Johnston (Dem.), appointed Jan. 4. J. N. Heiskell (Dem.) was appointed by the Governor of Arkansas on Jan. 6 for the balance of the term of Jeff Davis (Dem.), deceased; the legislature, however, elected on Jan. 29 Wm. M. Kavanaugh (Dem.), who retired March 4. Wm. R. Webb (Dem.) was elected by the legislature of Tennessee on Jan. 24 for the unexpired term of Robert L. Taylor (Dem.), deceased, for which Newell Sanders (Rep.) was appointed in 1912. Charles S. Thomas (Dem.) was elected by the legislature of Colorado on Jan. 14

for the unexpired term of Charles J. Hughes (Dem.), deceased, expiring in 1915. The vacancy in Illinois was not filled until the Sixty-third Congress (see I, *American History*).

The organization of the principal committees was given in the YEAR BOOK for 1911 (p. 202).

The House of Representatives.—A complete list of members of the House of Representatives in the Sixty-second Congress was given in the YEAR BOOK for 1911 (pp. 204-8), and the changes which occurred in 1912 in the issue for 1912 (p. 156). The following changes occurred in January and February, 1913:

James M. Cox (Dem.), of Ohio, resigned Jan. 8; William W. Wedemeyer (Rep.), of Michigan, died Jan. 2; and Sylvester C. Smith (Rep.), of California, died Jan. 26. None of these vacancies or of the five vacancies existing at the close of 1912 was filled.

Third Session.—The third session of the Sixty-second Congress began Dec. 2, 1912, and ended March 4, 1913. Two of the regular appropriation bills, the Sundry Civil and Indian, failed of passage (see I, *American History*); they were subsequently passed by the Sixty-third Congress. The total appropriations authorized for the fiscal year ending June 30, 1914, amounted to $684,757,276.26. The appropriations exclusive of permanent appropriations, appropriations for the Panama Canal, etc., by classes of expenditures, for the five years 1910-14, are given in the following table:

ANNUAL APPROPRIATIONS OF CONGRESS, 1910–14

APPROPRIATED	2d session 60th Congress 1910	1st and 2d sessions, 61st Congress, 1911	3d session 61st Congress, 1912	1st and 2d sessions, 62d Congress, 1913	3d session, 62d Congress, 1914
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*
To supply deficiencies	18,913,555	23,045,612	10,028,526.84	8,155,587.25	27,080,512.29
Legislative, executive, and judicial expenses	32,007,049	34,158,767	35,378,149.85	34,245,356.75	35,172,434.50
Sundry civil expenses	117,842,109	106,015,198	135,241,935.34	102,538,934.40	106,749,532.01
The army	101,195,883	95,440,567	93,374,755.97	90,958,712.98	94,266,145.51
The naval service	136,935,199	131,410,568	126,405,509.24	123,151,538.76	140,718,434.53
The Indian service	11,854,982	9,266,528	8,842,136.37	8,920,970.66	9,486,819.67
Rivers and harbors	29,190,264	49,380,541	30,883,419.00	40,559,620.50	51,118,889.00
Forts and fortifications	8,170,111	5,617,200	5,473,707.00	4,036,235.00	5,218,250.00
Military Academy	2,531,521	1,856,249	1,163,424.07	1,064,668.26	1,099,734.87
Post Office Dept.	.....	.....	Indefinite	Indefinite	Indefinite
Pensions	160,908,000	155,758,000	153,682,000.00	165,146,145.84	180,300,000.00
Consular and diplomatic service	3,613,861	4,116,081	3,988,516.41	3,638,047.41	3,730,642.66
Department of Agriculture	12,995,036	13,487,636	16,900,016.00	16,648,168.00	17,986,945.00
District of Columbia	10,699,531	10,608,045	12,056,786.50	10,675,833.50	11,383,739.00
Reclamation fund	.....	20,020,000	.....	.....	.....
Miscellaneous	1,327,176	3,544,798	1,130,678.81	7,642,359.03	445,197.22
Total	648,191,676	663,725,790	634,549,561.40	617,382,178.34	*684,757,276.26

*Exclusive of $6,262,850.09 appropriated during first or extra session of 63d Congress which appropriations, under terms of Deficiency Act of Oct. 22, 1913, are to be compiled and included with appropriation bills for the second session, 63rd Congess.

The number of bills and resolutions introduced in the Sixty-second Congress was 39,525, of which the House was responsible for 30,228. The bills enacted during the third session included the following of general interest; the dates are those of the President's approval:

S. 267. To provide assistance to persons in Alaska who are indigent and incapacitated through nonage, old age, sickness, or accident, and for other purposes. Public, No. 411, March 3, 1913.

S. 271. To authorize the collection of the military and naval records of the Revolutionary War, with a view to their publication. Public, No. 402, March 2, 1913.

S. 4043. Divesting intoxicating liq-

uors of their interstate character in certain cases. Public, No. 398, March 1, 1913. (See I, *American History.*)

S. 8000. Providing for publicity in taking evidence under act of July 2, 1890. Public, No. 416, March 3, 1913.

S. 8439. Restricting the issuance of interlocutory injunctions to suspend the enforcement of the statute of a state of an order made by an administrative board of commission created by and acting under the statute of a state. Public, No. 445, March 4, 1913.

H. R. 8768. To regulate the business of loaning money on security of any kind by persons, firms, and corporations other than national banks, licensed bankers, trust companies, savings banks, building and loan associations, and real estate brokers in the District of Columbia. Public, No. 359, Feb. 4, 1913.

H. R. 16450. To punish the unlawful breaking of seals of railroad cars containing interstate or foreign shipments, the unlawful entering of such cars, and other offenses. Public, No. 377, Feb. 13, 1913.

H. R. 18787. Relating to the limitation of the hours of daily service of laborers and mechanics employed upon a public work of the United States and of the District of Columbia, and of all persons employed in constructing, maintaining, or improving a river or harbor of the United States and of the District of Columbia. Public, No. 408. (See XVII, *Labor Legislation.*)

H. R. 21220. To extend the power of the Commissioner-General of Immigration. Public, No. 387, Feb. 25, 1913. (See I, *American History.*)

H. R. 22526. To amend section 8 of the Pure Food and Drugs Act of June 30, 1906, to permit slight variations from weights and measures marked on packages in certain cases. Public, No. 419.

H. R. 22593. To amend an act entitled "An act to regulate commerce," approved Feb. 4, 1887, and all acts amendatory thereof, by providing for a valuation of the several classes of property of carriers subject thereto, and securing information concerning their stocks, bonds, and other securities. Public, No. 400, March 1, 1913. (*Ibid.*)

H. R. 22913. To create a Department of Labor. Public, No. 426, March 1, 1913. (*Ibid.*)

H. R. 23001. To amend section 4472 of the Revised Statutes of the United States, relating to the carrying of dangerous articles on passenger steamers. Public, No. 349, Jan. 22, 1913.

H. R. 233351. To amend an act entitled "An act to provide for an enlarged homestead." Public, No. 369, Feb. 11, 1913.

H. R. 23568. To amend section 55 of "An act to amend and consolidate the acts respecting copyright," approved March 4, 1909. Public, No. 405, March 2, 1913.

H. R. 23676. To regulate the officering and manning of vessels subject to the inspection laws of the United States. Public, No. 420. (*Ibid.*)

H. R. 24703. To extend the authority to receive certified checks drawn on national and state banks and trust companies in payment for duties on imports and internal taxes and all public dues. Public, No. 421.

H. R. 27323. To provide for refund or abatement under certain conditions of penalty taxes imposed by section 38 of the act of Aug. 5, 1909, known as the special excise corporation-tax law. Public, No. 422, March 3, 1913.

H. R. 28766. To increase the limit of cost of certain public buildings, to authorize the enlargement, extension, remodeling, or improvement of certain public buildings, to authorize the purchase of sites for public buildings, and for other purposes. Public, No. 432, March 4, 1913.

THE SIXTY-THIRD CONGRESS

The Senate.—The terms of 32 Senators expired on March 4; 11 were reelected, indicated thus * in the list of Senators below. The death of Senator Joseph F. Johnston (Dem.), of Alabama, on Aug. 8 was the only change in the Senate since March; his successor has not been appointed (see I, *American History*). By the Seventeenth Amendment to the Federal Constitution, proclaimed on May 31, 1913, Senators will be elected henceforth by direct vote of the people. With the exception of Senator Augustus O. Bacon, of Georgia, elected under the terms of the Seventeenth Amendment, the present Senators hold office, under the old law, through election by their state legislatures.

THE SENATE

Democrats in Roman, 50; Republicans in *italics*, 44; Progressives in SMALL CAPS, 1; vacancy, 1; whole number 96. Salary, $7,500 per year and mileage of 20 cents per mile each way. Those marked * reëlected in 1912-13.

ALABAMA		ARKANSAS		COLORADO	
Term expires:		Term expires:		Term expires:	
1915.	———— ————.	1914.	James P. Clarke	1915.	Chas. S. Thomas
1919.	J. H. Bankhead *	1919.	Joe T. Robinson	1919.	John F. Shafroth
ARIZONA		CALIFORNIA		CONNECTICUT	
1915.	Marcus A. Smith	1915.	*George C. Perkins*	1915.	*Frank B. Brandegee*
1917.	Henry F. Ashurst	1917.	*John D. Works*	1917.	*George P. McLean*

DELAWARE

Term expires:
1917. *Henry A. du Pont*
1919. Willard Saulsbury

FLORIDA

1915. Duncan U. Fletcher
1917. Nathan P. Bryan

GEORGIA

1915. Hoke Smith
1919. Aug. O. Bacon *

IDAHO

1915. *James H. Brady*
1919. *W. E. Borah* *

ILLINOIS

1915. *Lawrence Y. Sherman*
1919. J. Hamilton Lewis

INDIANA

1915. Ben. F. Shively
1917. John W. Kern

IOWA

1915. *A. B. Cummins*
1919. *W. S. Kenyon* *

KANSAS

1915. *Joseph L. Bristow*
1919. W. H. Thompson

KENTUCKY

1915. *Wm. O. Bradley*
1919. Ollie M. James

LOUISIANA

1915. John R. Thornton
1919. Jos. E. Ransdell

MAINE

1917. Charles F. Johnson
1919. *Edwin C. Burleigh*

MARYLAND

1915. John W. Smith
1917. *William P. Jackson*

MASSACHUSETTS

1917. *Henry Cabot Lodge*
1919. *John W. Weeks*

MICHIGAN

1917. *Chas. E. Townsend*
1919. *Wm. Alden Smith*

MINNESOTA

Term expires:
1917. *Moses Edwin Clapp*
1919. *Knute Nelson* *

MISSISSIPPI

1917. John S. Williams
1919. Jas. K. Vardaman

MISSOURI

1915. William J. Stone
1917. James A. Reed.

MONTANA

1917. Henry L. Myers
1919. Thos. J. Walsh

NEBRASKA

1917. G. M. Hitchcock
1919. *Geo. W. Norris*

NEVADA

1915. F. G. Newlands
1919. Key Pittman

NEW HAMPSHIRE

1915. *Jacob H. Gallinger*
1919. Henry F. Hollis

NEW JERSEY

1917. James E. Martine
1919. Wm. Hughes

NEW MEXICO

1915. *Thomas B. Catron*
1919. *Albert B. Fall* *

NEW YORK

1915. *Elihu Root*
1917. Jas. A. O'Gorman

NORTH CAROLINA

1915. Lee S. Overman
1919. F. M. Simmons

NORTH DAKOTA

1915. *Asle J. Gronna*
1917. *P. J. McCumber*

OHIO

1915. *Theo. E. Burton*
1917. Atlee Pomerene

OKLAHOMA

1915. Thomas P. Gore
1919. Robt. L. Owen *

OREGON

Term expires:
1915. G. E. Chamberlain
1919. Harry Lane

PENNSYLVANIA

1915. *Boise Penrose*
1917. *George T. Oliver*

RHODE ISLAND

1917. *Henry F. Lippitt*
1919. *LeBaron B. Colt*

SOUTH CAROLINA

1915. Ellison D. Smith
1919. B. R. Tillman *

SOUTH DAKOTA

1915. *Coe I. Crawford*
1919. *Thomas Sterling*

TENNESSEE

1917. Luke Lea
1919. John K. Shields

TEXAS

1917. Chas. A. Culberson
1919. Morris Sheppard

UTAH

1915. *Reed Smoot*
1917. *Geo. Sutherland*

VERMONT

1915. *Wm. P. Dillingham*
1917. *Carroll S. Page*

VIRGINIA

1917. Claude A. Swanson
1919. Thos. S. Martin *

WASHINGTON

1915. *Wesley L. Jones*
1917. MILES POINDEXTER

WEST VIRGINIA

1917. Wm. E. Chilton
1919. *Nathan Goff*

WISCONSIN

1915. *Isaac Stephenson*
1917. *R. M. La Follette*

WYOMING

1917. *Clarence D. Clark*
1919. *F. E. Warren* *

Committees of the Senate.—The following is a list of the Senate Committees and their chairmen (see also I, *American History*):

Additional Accommodations for the Library of Congress.—Boise Penrose, Pa.
Agriculture and Forestry.—T. P. Gore, Okla.
Appropriations.—T. S. Martin, Va.
Audit and Control the Contingent Expenses of the Senate.—J. S. Williams, Miss.
Banking and Currency.—R. L. Owen, Okla.
Canadian Relations.—J. K. Shields, Tenn.
The Census.—W. E. Chilton, West Va.
Civil Service and Retrenchment.—Atlee Pomerene, Ohio.
Claims.—N. P. Bryan, Fla.
Coast and Insular Survey.—Willard Saulsbury, Del.
Coast Defense.—J. E. Martine, N. J.
Commerce.—J. P. Clarke, Ark.
Conservation of National Resources.—J. K. Vardaman, Miss.
Corporations Organized in the District of Columbia.—R. M. La Follette, Wis.
Disposition of Useless Papers in the Executive Departments.—C. S. Page, Vt.
District of Columbia.—J. W. Smith, Md.
Education and Labor.—Hoke Smith, Ga.
Engrossed Bills.—F. E. Warren, Wyo.

Enrolled Bills.—H. F. Hollis, N. H.
Examine the Several Branches of the Civil Service.—W. A. Smith, Mich.
Expenditures in the Department of Agriculture.—Morris Sheppard, Tex.
Expenditures in the Departments Commerce and Labor.—W. H. Thompson, Kan.
Expenditures in the Interior Department.—Reed Smoot, Utah.
Expenditures in the Department of Justice.—George Sutherland, Utah.
Expenditures in the Navy Department.—William Hughes, N. J.
Expenditures in the Post Office Department.—(To be appointed.)
Expenditures in the Department of State.—J. H. Lewis, Ill.
Expenditures in the Treasury Department.—J. T. Robinson, Ark.
Expenditures in the War Department.—Miles Poindexter, Wash.
Finance.—F. M. Simmons, N. C.
Fisheries.—J. R. Thornton, La.
Five Civilized Tribes of Indians.—Knute Nelson, Minn.
Foreign Relations.—A. O. Bacon, Ga.
Forest Reservations and the Protection of Game.—Harry Lane, Ore.
Geological Survey.—C. D. Clark, Wyo.
Immigration.—E. D. Smith, S. C.
Indian Affairs.—W. J. Stone, Mo.
Indian Depredations.—W. E. Borah, Idaho.
Industrial Expositions.—H. F. Ashurst, Ariz.
Interoceanic Canals.—J. A. O'Gorman, N. Y.
Interstate Commerce.—F. G. Newlands, Nev.
Investigate Trespassers upon Indian Lands.—Isaac Stephenson, Wis.
Irrigation and Reclamation of Arid Lands.—M. A. Smith, Ariz.
Revision of the Laws of the United States (Joint).—J. T. Robinson, Ark.
Judiciary.—C. A. Culberson, Tex.
Library.—Luke Lea, Tenn.
Manufactures.—J. A. Reed, Mo.
Military Affairs.—G. E. Chamberlain, Ore.
Mines and Mining.—T. J. Walsh, Mont.
Mississippi River and its Tributaries.—A. B. Cummins, Iowa.
National Banks.—C. F. Johnson, Me.
Naval Affairs.—B. R. Tillman, S. C.
Pacific Islands and Porto Rico.—J. F. Shafroth, Colo.
Pacific Railroads.—F. B. Brandegee, Conn.
Patents.—O. M. James, Ky.
Pensions.—B. F. Shively, Ind.
Philippines.—G. M. Hitchcock, Neb.
Post Offices and Post Roads.—J. H. Bankhead, Ala.
Printing.—D. U. Fletcher, Fla.
Private Land Claims.—H. C. Lodge, Mass.
Privileges and Elections.—J. W. Kern, Ind.
Public Buildings and Grounds.—C. A. Swanson, Va.
Public Health and National Quarantine.—J. E. Ransdell, La.
Public Lands.—H. L. Myers, Mont.
Railroads—G. C. Perkins, Cal.
Revolutionary Claims.—W. O. Bradley, Ky.
Rules.—L. S. Overman, N. C.
Standards, Weights and Measures.—M. E. Clapp, Minn.
Territories.—Key Pittman, Nev.
Transportation Routes to the Seaboard.—P. J. McCumber, N. D.
Transportation and Sale of Meat Products.—H. A. du Pont, Del.
University of the United States.—W. P. Dillingham, Vt.
Woman Suffrage.—C. S. Thomas, Colo.

The complete membership of the more important committees are:

Appropriations.—Martin (Va.), Overman (N. C.), Owen (Okla.), Smith (Md.), Chamberlain (Ore.), Lea (Tenn.), Bryan (Fla.), Shafroth (Colo.), Tillman (S. C.), Culberson (Tex.), Warren (Wyo.), Perkins (Cal.), Gallinger (N. H.), Smoot (Utah), Oliver (Pa.), Dillingham (Vt.), Jones (Wash.).

Banking and Currency.—Owen (Okla.), Hitchcock (Neb.), O'Gorman (N. Y.), Reed (Mo.), Pomerene (Ohio), Shafroth (Colo.), Hollis (N. H.), Nelson (Minn.), Bristow (Kan.), Crawford (S. D.), McLean (Conn.), Weeks (Mass.).

Finance.—Simmons (N. C.), Stone (Mo.), Williams (Miss.), Johnson (Maine), Shively (Ind.), Smith (Ga.), Thomas (Colo.), James (Ky.), Hughes (N. J.), Gore (Okla.), Penrose (Pa.), Lodge (Mass.), McCumber (N. D.), Smoot (Utah), Gallinger (N. H.), Clark (Wyo.), La Follette (Wis.).

Foreign Relations.—Bacon (Ga.), Stone (Mo.), Shiveley (Ind.), Clark (Ark.), Hitchcock (Neb.), O'Gorman (N. Y.), Williams (Miss.), Swanson (Va.), Pomerene (Ohio), Smith (Ariz.), Lodge (Mass.), Smith (Mich.), Root (N. Y.), McCumber (N. D.), Sutherland (Utah), Borah (Idaho), Burton (Ohio).

Interstate Commerce.—Newlands (Nev.), Smith (S. C.), Pomerene (Ohio), Myers (Mont.), Robinson (Ark.), Saulsbury (Del.), Thompson (Kan.), Lewis (Ill.), Gore (Okla.), Clapp (Minn.), Cummins (Iowa), Brandegee (Conn.), Oliver (Penn.), Lippitt (R. I.), Townsend (Mich.), La Follette (Wis.).

Judiciary.—Culberson (Tex.), Overman (N. C.), Chilton (W. Va.), O'Gorman (N. Y.), Fletcher (Fla.), Reed (Mo.), Ashurst (Ariz.), Shields (Tenn.), Walsh (Mont.), Bacon (Ga.), Clark (Wyo.), Nelson (Minn.), Dillingham (Vt.), Sutherland (Utah), Brandegee (Conn.), Borah (Idaho), Cummins (Iowa), Root (N. Y.).

House of Representatives.—The House of Representatives of the Sixty-third Congress is the first under the Apportionment Act of 1911, which increased the membership from 391 to 435. A table showing the apportionment of Representatives to the various states under each census was given in the YEAR BOOK for 1912 (p. 159). The following changes have occurred in the House of Representatives since the beginning of the term of the Sixty-third Congress:

H. Olin Young (Dem.), of Michigan, resigned on May 16, and was succeeded by Wm. J. McDonald (Prog.), whose election Mr. Young conceded; John W. Davis (Dem.), of West Virginia, resigned on Sept. 1 to become Solicitor-General of the U. S.; he was succeeded by M. M. Neely (Dem.), elected Oct. 14. Francis Burton Harrison (Dem.), of New York, resigned Sept. 1 to become Governor-General of the Philippine Islands; he was succeeded by Jacob A. Cantor (Dem.), elected Nov. 4. The House lost by death, Lewis J. Martin (Dem.), of New Jersey, May 5, succeeded by Arch. C. Hart (Dem.), elected Nov. 4; Forrest Goodwin (Rep.), of Maine, May 28, succeeded by John A. Peters (Rep.), elected Sept. 5; Timothy D. Sullivan (Dem.), of New York, Aug. 31, succeeded by George W. Loft (Dem.) elected Nov. 4; Wm. H. Wilder (Rep.), of Massachusetts, Sept. 11, succeeded by Calvin D. Paige (Rep.), elected Nov. 4; Seaborn A. Roddenbery (Dem.), of Georgia, Sept. 25, succeeded by Frank Park (Dem.), elected Nov. 5; Irvin S. Pepper (Dem.), of Iowa, Dec. 22.

HOUSE OF REPRESENTATIVES

Democrats in Roman, 290; Republicans in *italics*, 124; Progressive Republicans in *ITALIC CAPS*, 6; Progressives in SMALL CAPS, 13; Independent in CAPS, 1; vacancy, 1; whole number 435. Those marked * served in the 62d Congress. Salary, $7,500 per annum and mileage of 20 cents per mile.

ALABAMA

1. George W. Taylor *
2. S. H. Dent, Jr.*
3. H. D. Clayton
4. F. L. Blackmon *
5. J. T. Heflin *
6. R. P. Hobson
7. J. L. Burnett *
8. William Richardson *
9. O. W. Underwood *

AT LARGE—John W. Abercrombie.

ARIZONA

AT LARGE—Carl Hayden *

ARKANSAS

1. T. H. Caraway
2. W. A. Oldfield *
3. J. C. Floyd *
4. Otis Wingo
5. H. M. Jacoway *
6. S. M. Taylor
7. W. S. Goodwin *

CALIFORNIA

1. WM. KENT
2. J. E. Raker *
3. *Chas. F. Curry*
4. *Julius Kahn* *
5. *J. I. NOLAN*
6. *Jos. R. Knowland* *
7. D. S. Church
8. *Everis A. Hayes* *
9. *C. W. BELL*
10. *WM. D. STEPHENS* *
11. William Kettner

COLORADO

1. George J. Kindel
2. H. H. Seldomridge

AT LARGE—E. T. Taylor * Edw. Keating

CONNECTICUT

1. Augustine Lonergan
2. B. F. Mahan
3. Thomas L. Reilly *
4. Jeremiah Donovan
5. Wm. Kennedy

DELAWARE

AT LARGE—F. Brockson

FLORIDA

1. S. M. Sparkman *
2. Frank Clark *
3. Emmett Wilson

AT LARGE—Claude L'Engle

GEORGIA

1. C. G. Edwards *
2. Frank Park
3. C. R. Crisp
4. W. C. Adamson *
5. W. S. Howard *
6. C. L. Bartlett *
7. Gordon Lee *
8. S. J. Tribble *
9. Thos. M. Bell *
10. Thos. W. Hardwick *
11. J. R. Walker
12. D. M. Hughes *

IDAHO

AT LARGE—*B. L. French* * *Addison T. Smith*

ILLINOIS

1. *Martin B. Madden* *
2. *James R. Mann* *
3. George E. Gorman
4. J. T. McDermott *
5. A. J. Sabath *
6. James McAndrews
7. Frank Buchanan *
8. Thos. Gallagher *
9. *Fred A. Britten*
10. CHAS. M. THOMSON
11. *IRA C. COPLEY* *
12. WM. H. HINEBAUGH
13. *John C. McKenzie*
14. C. H. Tavenner
15. Stephen A. Hoxworth
16. Claudius U. Stone *
17. Louis FitzHenry
18. Frank T. O'Hair
19. Chas. M. Borchers
20. H. T. Rainey *
21. J. M. Graham *
22. W. N. Baltz
23. M. D. Foster *
24. H. R. Fowler *
25. R. P. Hill

AT LARGE—W. E. Williams L. B. Stringer

INDIANA

1. Chas. Lieb
2. W. A. Cullop *
3. W. E. Cox *
4. Lincoln Dixon *
5. R. W. Moss *
6. F. H. Gray *
7. C. A. Korbly *
8. J. A. M. Adair *
9. M. A. Morrison *
10. J. B. Peterson
11. G. W. Rauch *
12. Cyrus Cline *
13. H. A. Barnhart *

IOWA

1. *C. A. Kennedy* *
2. ———— ————
3. Maurice Connolly
4. *G. N. Haugen* *
5. *J. W. Good* *
6. S. Kirkpatrick
7. *S. F. Prouty* *
8. *H. M. Towner* *
9. *W. R. Green* *
10. *F. P. Woods* *
11. *George C. Scott*

KANSAS

1. *D. R. Anthony Jr.**
2. Joseph Taggart *
3. *P. P. Campbell* *
4. Dudley Doolittle
5. G. T. Helvering
6. J. R. Connelly
7. Geo. A. Neeley *
8. VICTOR MURDOCK

KENTUCKY

1. A. W. Barkley
2. A. O. Stanley *
3. R. Y. Thomas, Jr.*
4. Ben Johnson *
5. Swagar Sherley *

6. A. B. Rouse *
7. J. C. Cantrill *
8. Harvey Helm *
9. W. J. Fields *
10. *J. W. Langley* *
11. *Caleb Powers* *

LOUISIANA

1. Albert Estopinal *
2. H. Garland Dupré *
3. R. F. Broussard *
4. J. T. Watkins *
5. Walter Elder
6. L. L. Morgan
7. L. Lazaro
8. J. B. Aswell

MAINE

1. *A. C. Hinds* *
2. D. J. McGillicuddy *
3. *John A. Peters*
4. *F. E. Guernsey* *

MARYLAND

1. J. Harry Covington *
2. J. F. C. Talbott *
3. Charles P. Coady
4. J. Chas. Linthicum *
5. Frank O. Smith
6. D. J. Lewis *

MASSACHUSETTS

1. *Allen T. Treadway*
2. *F. H. Gillett* *
3. *Calvin D. Paige*
4. *S. E. Winslow*
5. *John J. Rogers*
6. *A. P. Gardner* *
7. M. F. Phelan
8. F. S. Deitrick
9. *E. W. Roberts* *
10. W. F. Murray *
11. A. J. Peters *
12. J. M. Curley *
13. John J. Mitchell
14. Edward Gilmore
15. *W. S. Greene* *
16. Thos. C. Thacher

MICHIGAN

1. Frank E. Doremus *
2. Samuel W. Beakes
3. *J. M. C. Smith*
4. *E. L. Hamilton* *
5. *C. E. Mapes*
6. *S. W. Smith* *
7. *L. C. Cramton*
8. *J. W. Fordney* *
9. *J. C. McLaughlin* *
10. R. O. WOODRUFF
11. *F. O. Lindquist*
12. W. J. MACDONALD

AT LARGE—*P. H. Kelley*

MINNESOTA

1. *S. Anderson* *
2. W. S. Hammond *
3. *C. R. Davis* *
4. *F. C. Stevens* *
5. *Geo. R. Smith*
6. *C. A. Lindbergh* *
7. *A. J. Volstead* *
8. *C. B. Miller* *
9. *H. Steenerson* *

AT LARGE—*Jas. Manahan*

MISSISSIPPI

1. E. S. Candler, Jr.*
2. H. D. Stephens *
3. B. G. Humphreys *
4. T. U. Sisson *
5. S. A. Witherspoon *
6. B. P. Harrison *
7. P. E. Quin
8. J. W. Collier *

MISSOURI

1. J. T. Lloyd *
2. W. W. Rucker *
3. J. W. Alexander *
4. C. F. Booher *
5. W. P. Borland *
6. C. C. Dickinson *
7. C. W. Hamlin *
8. D. W. Shackleford *
9. Champ Clark *
10. *Richard Bartholdt* *
11. W. L. Igoe
12. *L. C. Dyer* *
13. W. L. Hensley *
14. J. J. Russell *
15. P. D. Decker
16. T. L. Rubey *

MONTANA

AT LARGE—Thomas Stout
John M. Evans

NEBRASKA

1. J. A. Maguire *
2. C. O. Lobeck *
3. D. V. Stephens *
4. *C. H. Sloan* *
5. *S. R. Barton*
6. *M. P. Kinkaid* *

NEVADA

AT LARGE—*E. E. Roberts* *

NEW HAMPSHIRE

1. E. E. Reed
2. R. B. Stevens

NEW JERSEY

1. *Wm. J. Browning* *
2. J. Thompson Baker
3. Thos. J. Scully *
4. A. B. Walsh
5. Wm. E. Tuttle, Jr.*
6. Arch. C. Hart
7. R. G. Bremner
8. E. F. Kinkead *
9. W. I. McCoy *
10. E. W. Townsend *
11. J. J. Eagan
12. J. A. Hamill *

NEW MEXICO

AT LARGE—H. B. Fergusson *

NEW YORK

1. Lathrop Brown
2. D. O'Leary
3. F. E. Wilson *
4. H. H. Dale
5. J. P. Maher *
6. *W. M. Calder* *
7. J. J. Fitzgerald *
8. D. J. Griffin
9. J. H. O'Brien
10. H. A. Metz
11. D. J. Riordan *
12. H. M. Goldfogle *
13. George W. Loft
14. J. M. Levy *
15. M. F. Conry *
16. P. J. Dooling
17. J. F. Carew
18. Thos. G. Patten *
19. W. M. CHANDLER
10. Jacob A. Cantor
21. Henry George, Jr.*
22. Henry Bruckner
23. J. A. Goulden
24. W. R. Oglesby
25. B. I. Taylor
26. *Edmund Platt*
27 George McClellan
28. P. G. Ten Eyck
29. *James S. Parker*
30. *Samuel Wallin*
31. *E. A. Merritt, Jr.*
32. *Luther W. Mott* *
33. C. A. Talcott *
34. *Geo. W. Fairchild* *
35. John R. Clancy
36. *Sereno E. Payne* *
37. Edwin S. Underhill *
38. *Thos. B. Dunn*
39. *H. G. Danforth* *
40. Robt. H. Gittins
41. Chas. B. Smith *
42. D. A. Driscoll *
43. *C. M. Hamilton*

NORTH CAROLINA

1. J. H. Small *
2. Claude Kitchin *
3. J. M. Faison *
4. E. W. Pou *
5. C. M. Stedman *
6. H. L. Godwin *
7. R. N. Page *
8. R. L. Doughton *
9. E. Y. Webb *
10. J. M. Gudger, Jr.*

NORTH DAKOTA

1. *H. T. Helgesen* *
2. *Geo. M. Young*
3. *P. D. Norton*

OHIO

1. S. E. Bowdle
2. A. G. Allen *
3. Warren Gard
4. J. H. Goeke *
5. T. T. Ansberry *
6. *S. D. Fess*
7. J. D. Post *
8. *F. B. Willis* *
9. I. R. Sherwood *
10. *R. M. Switzer* *
11. H. C. Claypool *
12. C. Brumbaugh
13. John A. Key
14. W. G. Sharp *
15. George White *
16. W. B. Francis *
17. W. A. Ashbrook *
18. J. J. Whitacre *
19. E. R. Bathrick *
20. Wm. Gordon
21. R. J. Bulkley *

AT LARGE—Robert Crosser

OKLAHOMA

1. *B. McGuire* *
2. *Dick T. Morgan* *
3. J. S. Davenport *
4. C. D. Carter *
5. Scott Ferris *

AT LARGE—W. H. Murray
Claude Weaver
J. B. Thompson

OREGON

1. *W. C. Hawley* *
2. *N. J. Sinnott*
3. *A. W. LAFFERTY* *

PENNSYLVANIA

1. *W. S. Vare* *
2. *G. S. Graham*
3. *J. H. Moore* *
4. *G. W. Edmonds*
5. Michael Donohoe *
6. J. W. Logue
7. *T. S. Butler* *
8. R. E. Difenderfer *
9. *W. W. Griest* *
10. *J. R. FARR* *
11. J. J. Casey
12. R. E. Lee *
13. J. H. Rothermel *
14. *W. D. B. Ainey* *
15. *E. R. Kiess*
16. John V. Lesher
17. F. L. Dershem
18. *A. S. Kreider*
19. W. W. Bailey
20. A. R. Brodbeck
21. *C. E. Patton* *
22. *A. L. Keister*
23. W. N. Carr
24. H. W. TEMPLE
25. *M. W. Shreve*
26. A. M. Palmer *
27. *J. N. Langham* *
28. W. J. HULINGS
29. *S. G. Porter* *
30. M. C. KELLY
31. *J. F. Burke* *
32. *A. J. Barchfeld* *

AT LARGE—A. R. RUPLEY
J. M. Morin
A. H. Walters
F. E. LEWIS

RHODE ISLAND

1. G. F. O'Shaunessy *
2. Peter G. Gerry
3. *Ambrose Kennedy*

SOUTH CAROLINA

1. Richard S. Whaley
2. J. F. Byrnes *
3. Wyatt Aiken *
4. J. T. Johnson *
5. D. E. Finley *
6. J. W. Ragsdale
7. A. F. Lever *

SOUTH DAKOTA

1. *C. H. Dillon*
2. *C. H. Burke* *
3. *E. W. Martin* *

TENNESSEE

1. *Sam R. Sells* *
2. *R. W. Austin* *
3. J. A. Moon *
4. Cordell Hull *
5. W. C. Houston *
6. J. W. Byrns *
7. L. P. Padgett *
8. T. W. Sims *
9. F. J. Garrett *
10. K. D. McKellar *

TEXAS

1. H. W. Vaughan
2. Martin Dies *
3. James Young *
4. Sam Rayburn
5. Jack Beall *
6. Rufus Hardy *
7. A. W. Gregg *
8. J. H. Eagle
9. G. F. Burgess *
10. James P. Buchanan
11. R. L. Henry *
12. Oscar Callaway *
13. J. H. Stephens *
14. J. L. Slayden *
15. J. N. Garner *
16. W. R. Smith *

AT LARGE—H. W. Sumners
D. E. Garrett

UTAH

AT LARGE—*Joseph Howell* *
Jacob Johnson

VERMONT

1. *Frank L. Greene* *
2. *Frank Plumley* *

VIRGINIA

1. W. A. Jones *
2. E. E. Holland *
3. A. J. Montague
4. W. A. Watson
5. E. W. Saunders *
6. Carter Glass *
7. James Hay *
8. C. C. Carlin *
9. *C. B. Slemp* *
10. H. D. Flood *

WASHINGTON

1. *W. E. Humphrey* *
2. *A. Johnson*
3. *W. L. La Follette* *

AT LARGE—J. A. FALCONER
J. W. BRYAN

WEST VIRGINIA

1. M. M. Neely
2. W. G. Brown, Jr.*
3. *S. B. Avis*
4. *H. H. Moss, Jr.*
5. *J. A. Hughes* *

AT LARGE—*H. Sutherland*

WISCONSIN

1. *H. A. Cooper* *
2. M. E. Burke *
3. *J. M. Nelson* *
4. *W. J. Cary* *
5. *W. H. Stafford*
6. M. K. Reilly
7. *J. J. Esch* *
8. *E. E. Browne*
9. T. F. Konop *
10. *James A. Frear*
11. *I. L. Lenroot* *

WYOMING

AT LARGE—*F. W. Mondell* *

Committees of the House of Representatives.—The following is a list of the House Committees and their Chairmen (see also I *American History*):

Accounts.—J. T. Lloyd, Mo.
Agriculture.—A. F. Lever, S. C.
Alcoholic Liquor Traffic.—A. J. Sabath, Ill.
Appropriations.—J. J. Fitzgerald, N. Y.
Banking and Currency.—Carter Glass, Va.
Census.—Harvey Helm, Ky.
Claims.—E. W. Pou, N. C.
Coinage, Weights and Measures.—T. W. Hardwick, Ga.
Disposition of Useless Executive Papers.—J. F. C. Talbott, Md.
District of Columbia.—Ben Johnson, Ky.
Education.—D. M. Hughes, Ga.
Election of President, Vice-President, and Representatives in Congress.—W. W. Rucker, Mo.
Elections No. 1.—J. D. Post, Ohio.
Elections No. 2.—J. A. Hamill, N. J.
Elections No. 3.—H. M. Goldfogle, N. Y.
Enrolled Bills.—W. A. Ashbrook, Ohio.
Expenditures in the Department of Agriculture.—R. L. Doughton, N. C.
Expenditures in the Department of Commerce.—J. H. Rothermel, Pa.
Expenditures in the Interior Department.—J. M. Graham, Ill.
Expenditures in the Department of Justice.—R. F. Broussard, La.
Expenditures in the Department of Labor.—J. P. Maher, N. Y.
Expenditures in the Navy Department.—Rufus Hardy, Tex.
Expenditures in the Post Office Department.—I S. Pepper, Iowa.
Expenditures in the State Department.—C. W. Hamlin, Mo.
Expenditures in the Treasury Department.—C. O. Lobeck, Neb.
Expenditures in the War Department.—J. A. M. Adair, Ind.
Expenditures on Public Buildings.—T. F. Konop, Wis.
Foreign Affairs.—H. D. Flood, Va.
Immigration and Naturalization.—J. L. Burnett, Ala.

Indian Affairs.—J. H. Stephens, Tex.
Industrial Arts and Expositions.—E. S. Underhill, N. Y.
Insular Affairs.—W. A. Jones, Va.
Interstate and Foreign Commerce.—W. C. Adamson, Ga.
Invalid Pensions.—I. R. Sherwood, Ohio.
Irrigation of Arid Lands.—W. R. Smith, Tex.
Judiciary.—H. D. Clayton, Ala.
Labor.—D. J. Lewis, Md.
Library.—J. J. Slayden, Tex.
Merchant Marine and Fisheries.—J. W. Alexander, Mo.
Mileage.—W. W. Bailey, Pa.
Military Affairs.—James Hay, Va.
Mines and Mining.—M. D. Foster, Ill.
Naval Affairs.—L. P. Padgett, Tenn.
Patents.—W. A. Oldfield, Ark.
Pensions.—William Richardson, Ala.
Post Office and Post Roads.—J. A. Moon, Tenn.
Printing.—H. A. Barnhart, Ind.
Public Buildings and Grounds.—Frank Clark, Fla.
Public Lands.—Scott Ferris, Okla.
Railways and Canals.—Martin Dies, Tex.
Reform in the Civil Service.—H. L. Godwin, N. C.
Revision of the Laws.—J. T. Watkins, La.
Rivers and Harbors.—S. M. Sparkman, Fla.
Roads.—D. W. Shackleford, Mo.
Rules.—R. L. Henry, Tex.
Territories.—W. C. Houston, Tenn.
War Claims.—A. W. Gregg, Tex.
Ways and Means.—O. W. Underwood, Ala.

The complete membership of the more important committees is as follows:

Appropriations. — Fitzgerald (N. Y.), Sherley (Ky.), Bartlett (Ga.), Johnson (S. C.), Page (N. C.), Rauch (Ind.), Byrns (Tenn.), Sisson (Miss.), Kinkead (N. J.), Borland (Mo.) White (Ohio), McAndrews (Ill.), Mahan (Conn.), Carr (Pa.), Gillett (Mass.), Good (Iowa), Mondell (Wyo.), Davis (Minn.), Calder (N. Y.), Vare (Pa.), Hinebaugh (Ill.).

Banking and Currency.—Glass (Va.), Korbly (Ind.), Brown (West Va.), Bulkley (Ohio), Neeley (Kan.), Patten (N. Y.), Stone (Ill.), Phelan (Mass.), Eagle (Tex.), Wingo (Ark.), Hayes (Cal.), Guernsey (Maine), Burke (Pa.), Woods (Iowa), Platt (N. Y.), Smith (Minn.), Lindbergh (Minn.).

Foreign Affairs.—Flood (Va.), Sharp (Ohio), Cline (Ind.), Levy (N. Y.), Curley (Mass.), Linthicum (Md.), Difenderfer (Pa.), Goodwin (Ark.), Stedman (N. C.), Townsend (N. J.), Harrison (Miss.), Smith (N. Y.), Walker (Ga.), Vaughan (Tex.), Cooper (Wis.), Bartholdt (Mo.), Fairchild (N. Y.), Porter (Pa.), Ainey (Pa.), Rogers (Mass.), Temple (Pa.).

Judiciary.—Clayton (Va.), Webb (N. C.), Carlin (Va.), Floyd (Ark.), Thomas (Ky.), Dupre (La.), McCoy (N. J.), McGillicuddy (Me.), Beall (Tex.), Taggart (Kan.), FitzHenry (Ill.), Carew (N. Y.), Peterson (Ind.), Mitchell (Mass.), Volstead (Minn.), Nelson (Wis.), Morgan (Okla.), Danforth (N. Y.), Dyer (Mo.), Graham (Pa.), Chandler (N. Y.).

Interstate and Foreign Commerce.—Adamson (Ga.), Sims (Tenn.), Covington (Md.), Cullop (Ind.), Doremus (Mich.), Goeke (Ohio), O'Shaunessy (R. I.), Talcott (N. Y.) Stephens (Neb.), Stevens (N. H.), Barkley (Ky.), Rayburn (Tex.), Montague (Va.), Decker (Mo.), Stevens (Minn.), Esch (Wis.), Knowland (Cal.), Hamilton (Mich.), Martin (S. D.), Willis (Ohio), Lafferty (Ore.).

Ways and Means.—Underwood (Ala.), Kitchin (N. C.), Rainey (Ill.), Dixon (Ind.), Hull (Tenn.), Hammond (Minn.), Peters (Mass.), Palmer (Pa.), Ansberry (Ohio), Garner (Tex.), Collier (Tex.), Stanley (Ky.), Dickinson (Mo.), Conry (N. Y.), Payne (N. Y.), Fordney (Mich), Gardner (Mass.), Moore (Pa.), Green (Iowa).

First Session.—The first (special) session of the Sixty-third Congress opened on April 7 and ended on Dec. 1, merging without adjournment in the second session. The total number of bills and resolutions introduced during the first session was 17,213, of which the House was responsible for 10,067. The important public bills enacted were:

S. 2319. Authorizing the appointment of an Ambassador to Spain. Public, No. 10, Sept. 4, 1913.

S. 2517. Providing for mediation, conciliation, and arbitration in controversies between certain employers and their employees. Public, No. 6, July 15, 1913. (See I, *American History.*)

H. R. 3321. To reduce tariff duties and to provide revenue for the Government, and for other purposes. Public, No. 16, Oct. 3, 1913. (*Ibid.*)

H. R. 4234. Providing certain legislation for the Panama-California Exposition to be held in San Diego, Cal., during the year 1915. Public, No. 2, May 7, 1913.

H. R. 7595. Providing for the free importation of articles intended for foreign buildings and exhibits at the Panama-Pacific International Exposition, and for the protection of foreign exhibitors. Public, No. 14, Sept. 18, 1913. (See XXI, *Patents.*)

H. J. Res. 130. To provide for the relief and transportation of destitute American citizens in Mexico. Public Res., No. 8, Sept. 16, 1913.

The following is a list of the important bills passed by one house during the first session but not enacted:

S. 60. To provide for agricultural entry of oil lands. Passed Senate July 10.

S. 136. To promote the welfare of American seamen in the merchant marine of the United States; to abolish arrest and imprisonment as a penalty for desertion, and to secure the abrogation of treaty provisions in relation thereto;

and to promote safety at sea. Passed Senate Oct. 28.

S. 192. To limit the use of campaign funds in presidential and national elections. Passed Senate Oct. 20.

S. 1294. To regulate the hours of employment and safeguard the health of females employed in the District of Columbia. Passed Senate July 12.

S. 2258. To extend the proposed reorganization of the customs service for a period of six months. Passed Senate June 10.

S. 2318. Authorizing the appointment of envoys extraordinary and ministers plenipotentiary to Paraguay and Uruguay. Passed Senate Aug. 1.

S. J. Res. 5. Providing for the appointment of a commission to consider the need of and report a plan for national aid to vocational education. Passed Senate Oct. 30.

H. R. 6282. To provide for the registration of, with collectors of internal revenue, and to impose a tax upon all persons who produce, import, manufacture compound, deal in, dispense, sell, distribute, or give away, opium or cocoa leaves, their salts, derivatives, or preparations, and for other purposes. Passed House June 27.

Second Session.—The Second Session of the Sixty-third Congress opened on Dec. 1; it was recessed on Dec. 23 until Jan. 2. The bills of public interest enacted were:

H. R. 7207. Granting to the city and county of San Francisco certain rights of way in, over, and through certain public lands, the Yosemite National Park, and Stanislaus National Forest, and certain lands in the Yosemite National Park, the Stanislaus National Forest, and other public lands in the state of California. Dec. 19, 1913.

H. R. 7837. To provide for the establishment of Federal reserve banks, for furnishing an elastic currency, affording means of rediscounting commercial paper, and to establish a more effective supervision of banking in the United States, and for other purposes. Dec. 23, 1913.

THE FEDERAL JUDICIARY

The United States Supreme Court.—Supreme Court justices are appointed for life and receive salaries of $12,500 per year, except the Chief Justice, whose salary is $13,000. The justices of the Supreme Court are:

UNITED STATES SUPREME COURT

	Born.	App
Edward D. White, La., Chief Justice	1845	1894
Joseph McKenna, Cal.	1843	1898
Oliver W. Holmes, Mass.	1841	1902
William R. Day, Ohio	1849	1903
Horace H. Lurton, Tenn.	1844	1909
Charles E. Hughes, N. Y.	1862	1910
Willis Van Devanter, Wyo.	1859	1910
Joseph Rucker Lamar, Ky.	1857	1910
Mahlon Pitney, N. J.	1858	1912

Clerk, J. H. McKenney, D. C., $6,000.
Marshal, J. M. Wright, Ky., $3,500.
Reporter, Chas. H. Butler, N. Y., $4,500.

United States Circuit Courts of Appeals.—The act of March 3, 1911 (*A. Y. B.*, 1912, p. 231) provides that there shall be in each judicial circuit a Circuit Court of Appeals, which shall consist of three judges, two of whom shall constitute a quorum; the Chief Justice and the associate justices of the Supreme Court assigned to each circuit, and the several district judges within each circuit, shall be competent to sit as judges of the circuit court of appeals within their respective circuits, in addition to the judges of the circuit courts abolished in 1912 (*A. Y. B.*, 1912, p. 231). There were 33 circuit judges on Dec. 31. The salary of circuit judges is $7,000.

The nine circuits into which the United States is divided, with the Supreme Court justice assigned to each in March, 1912, are as follows:

First Judicial Circuit. — Mr. Justice Holmes. Districts of Maine, New Hampshire, Massachusetts, and Rhode Island.

Second Judicial Circuit. — Mr. Justice Hughes. Districts of Vermont, Connecticut, Northern New York, Southern New York, Eastern New York, and Western New York.

Third Judicial Circuit.—Mr. Justice Pitney. Districts of New Jersey, Eastern Pennsylvania, Middle Pennsylvania, Western Pennsylvania, and Delaware.

Fourth Judicial Circuit.—Mr. Chief Justice White. Districts of Maryland, Northern West Virginia, Southern West Virginia, Eastern Virginia, Western Virginia, Eastern North Carolina, Western North Carolina, and South Carolina.

Fifth Judicial Circuit.—Mr. Justice Lamar. Districts of Northern Georgia, Southern Georgia, Northern Florida, Southern Florida, Northern Alabama, Middle Alabama, Southern Alabama, Northern Mississippi, Southern Mississippi, Eastern Louisiana, Western Louisiana, Northern Texas, Southern Texas, Eastern Texas, and Western Texas.

Sixth Judicial Circuit.—Mr. Justice Day. Districts of Northern Ohio, Southern Ohio, Eastern Michigan, Western Michigan, Eastern Kentucky, Western Kentucky, Eastern Tennessee, Middle Tennessee, and Western Tennessee.

Seventh Judicial Circuit.—Mr. Justice Lurton. Districts of Indiana, Northern Illinois, Eastern Illinois, Southern Illinois, Eastern Wisconsin, and Western Wisconsin.

Eighth Judicial Circuit.—Mr. Justice Van Devanter. Districts of Minnesota, Northern Iowa, Southern Iowa, Eastern Missouri, Western Missouri, Eastern Arkansas, Western Arkansas, Nebraska, Colorado, Kansas, North Dakota, South Dakota, Eastern Oklahoma, Western Oklahoma, Wyoming, Utah, and New Mexico.

Ninth Judicial Circuit.—Mr. Justice McKenna. Districts of Northern California, Southern California, Oregon, Nevada, Montana, Eastern Washington, Western Washington, Idaho, Arizona, and Territories of Alaska and Hawaii.

United States District Courts.—The judicial districts into which the United States is divided are enumerated in the table above. On Dec. 31 there were 92 district judges in the United States, exclusive of the noncontiguous territories. There are two U. S. district judges in Hawaii and one in Porto Rico. The salary of district judges is $7,000.

Commerce Court.—A court to be known as the Commerce Court, and having jurisdiction (previously possessed by circuit courts) over all cases for the enforcement of any order of the Interstate Commerce Commission, other than for the payment of money, was established by Congress in 1909. Its members were additional circuit judges, with a salary of $7,000 each. They were appointed as follows:

Presiding Judge—Martin A. Knapp, Dec. 20, 1910, for five years.

Associate Judges—Robert W. Archbald, Jan. 31, 1911, for four years.

William H. Hunt, Jan. 31, 1911, for three years.

John Emmett Carland, Jan. 31, 1911, for two years, and reappointed Jan. 31, 1913, for five years.

Julian W. Mack, Jan. 31, 1911, for one year, and reappointed Jan. 31, 1912, for five years.

Judge Robert W. Archbald was removed by impeachment on Jan. 19, 1913. The Commerce Court was abolished on Dec. 31, 1913, by a clause in the Urgent Deficiency Appropriation Act approved Oct. 22, 1913; its jurisdiction was transferred to the district courts, and its members were retained as additional circuit judges. (See also I, *American History.*)

Court of Claims.—Claims against the United States are adjudicated by a Court of Claims consisting of five judges appointed for life or during good behavior, the Chief Justice receiving a salary of $6,500 and the associate judges of $6,000. The Court is now constituted as follows:

Chief Justice.—Edward K. Campbell, appointed 1913.

Judges.—Charles B. Howry, appointed 1897.
Fenton W. Booth, appointed 1897.
Samuel S. Barney, appointed 1906.
George W. Atkinson, appointed 1905.

Court of Customs Appeals.—The tariff act of 1909 created a new court to hear appeals in custom cases to be called the Court of Customs Appeals, which is constituted as follows:

Presiding Judge.—Robert M. Montgomery, Michigan.

Associate Judges.—James F. Smith, California; Orion M. Barber, Vermont; Marion De Vries, California; George E. Martin, Ohio.

THE CONSULAR SERVICE

The consular service of the United States was reorganized by act of Congress of April 5, 1906, amended by the act of May 11, 1908. Under this reorganization there are fifty-seven consuls general, divided into seven classes, the salaries being as follows:

Class 1	Salary	$12,000	Two at London and at Paris.
" 2	"	8,000	Six, located at Berlin, Habana, Hamburg, Hongkong, Rio de Janeiro, and Shanghai.
" 3	"	6,000	Eight, located at Calcutta, Cape Town, Constantinople, Mexico City, Montreal, Ottawa, Vienna, and Yokohama.
" 4	"	5,500	Twelve in all.
" 5	"	4,500	Seventeen in all.
" 6	"	3,500	Nine in all.
" 7	"	3,000	Three in all.

Consuls.—The United States consuls are divided into nine classes, with salaries ranging from $8,000 down to $2,000. There is but one consul of Class 1, located at Liverpool, Eng., at a salary of $8,000, and but one Class 2, at Manchester, Eng., at a salary of $6,000.

There are in all 241 consuls, located in the principal cities of the various countries of the world, and, in addition, 224 consular agents.

THE DIPLOMATIC SERVICE

ACCREDITED BY UNITED STATES			ACCREDITED TO UNITED STATES	
		AMBASSADORS		
Country	Appointed		Commissioned	
Austria-Hungary	Frederic C. Penfield	1913	Constantin Theodor Dumba	1913
Brazil	Edwin V. Morgan	1912	Domicio da Gama	1911
France	Myron T. Herrick	1912	J. J. Jusserand	1903
Germany	James W. Gerard	1913	Count J. H. von Bernstorff	1908
Great Britain	Walter H. Page	1913	Sir Cecil Arthur Spring-Rice	1913
Italy	Thomas W. Page	1913	Marquis Cusani-Confalioneri	1910
Japan	George W. Guthrie	1913	Viscount Sutemi Chinda	1912
Mexico	———	———	Señor Don Manuel Calero	1912
Russia	———	———	George Bakhméteff	1911
Turkey	Henry Morgenthau	1913	Youssouf Zia Pacha	1910
		MINISTERS PLENIPOTENTIARY		
Argentina	John W. Garrett	1912	Rómulo S. Naón	1912
Belgium	Brand Whitlock	1913	E. Havenith	1911
Bolivia	John D. O'Rear	1913	Señor Don Ignacio Calderon	1904
Chili	Henry P. Fletcher	1909	Señor Don Eduardo Suárez	1911
China	Paul S. Reinsch	1913	Chang Yin Tang	1909
Colombia	Thaddeus A. Thompson	1913	Señor Don Julio Betancourt	1912
Costa Rica	Edward J. Hale	1913	Señor Don Joaquin Bernardo Calvo	1899
Cuba	William E. Gonzales	1913	Pablo Desvernine	1913
Denmark	Maurice Francis Egan	1907	Constantin Brun	1913
Dominican Republic	James M. Sullivan	1913	Señor Don Francisco J. Peynado	1912
Ecuador	Charles S. Hartman	1913	Señor Dr. Don Gonzalo S Cordova	1913
Greece and Montenegro	George F. Williams	1913	L. A. Coromilas	1906
Guatemala	William H. Lavell	1913	Señor Don Joaquin Mendes	1912
Haiti	Madison R. Smith	1913	Ulrich Duvivier	1913
Honduras	John Ewing	1913	Dr. Alberto Membreno	1912
Netherlands and Luxemburg	Henry van Dyke	1913	Jonkheer J. Loudon	1908
Nicaragua	Benjamin J. Jefferson	1913	Sen. Don Emiliano Chamorao	1913
Norway	Albert J. Schmedemann	1913	H. M. Bryn	1910
Panama	William J. Price	1913	Sen. Don Eusebius A. Morales	1913
Paraguay	———	———	Hector Valazquez	1913
Paraguay and Uruguay	Nicholay A. Grevstad	1913	———	———
Persia	Charles W. Russell	1909	Mirza Ali Kuli Khan	1911
Peru	Benton McMillan	1913	Frederico A. Pezet	1912
Portugal	Thomas H. Birch	1913	Viscount de Alte	1902
Roumania, Servia and Bulgaria	Charles J. Volpicka	1913	———	———
Salvador	Wm. Heimke	1909	Señor Don Francisco Duenas	1913
Siam	Fred. W. Carpenter	1912	Prince Traidos Prabandh	1912
Spain	Joseph E. Willard	1913	Señor Don Juan Riaño y Gayangos	1910
Sweden	Chas. H. Graves	1905	W. A. F. Ekengren	1911
Switzerland	Pleasant A. Stovall	1913	Dr. Paul Ritter	
Uruguay	———	———	Dr. Carlos Maria de Pena	1911
Venezuela	Preston McGoodwin	1913	Don P. Ezequiel Rojas	1909

CIVIL SERVICE

CLINTON ROGERS WOODRUFF

Growth of the Service.—For the fifth time since its enactment in 1883 the Federal civil-service law has passed through a change of party in control of the appointing power. Under nine Administrations and under different parties the Act has been enforced and its application enlarged and strengthened. The competitive system of appointments as a remedy for abuses and a basis for efficient administration is now an established and widely applied policy of government, extending to over 300,000 positions of the Federal Government and its insular possessions and about as many more in the service of states and cities. Nine states have adopted the system by law for their state services, three of them in 1913—California, Ohio and Connecticut. About 250 cities and a number of counties

and villages also operate under the merit system and a higher order of character and efficiency has been everywhere obtained in the branches of the service subject to its operation. The examinations have been extended to higher classes of positions requiring not only the highest expert knowledge but the highest expert administrative ability. A marked instance of this is in the examinations now being held for the force of experts to be employed under the Interstate Commerce Commission in the valuation of railroads.

The Democratic Attitude.—The Democratic platform of 1912 definitely pledged the new Administration to the support of the merit system in the following language:

> The law pertaining to the civil service should be honestly and rigidly enforced to the end that merit and ability should be the standard of appointment and promotion rather than service rendered to a political party.

The platform also recognized, in a promise of reorganization of the civil service as to salaries, a long-needed administrative reform.

President Wilson's first pronouncement on the patronage question was made on March 5 when he issued a statement to the effect that only office seekers who were personally invited into conference with him would be received at the White House. All interested in appointments would be referred to the several department heads. This statement was interpreted as not including Senators and Representatives "to whom the President hopes to be accessible at all times and on all subjects."

A New Civil Service Commission.—President Wilson sent to the Senate on June 10, 1913, the nominations of Charles M. Galloway, of South Carolina, as successor to John C. Black, of Illinois, and Hermon W. Craven, of Washington, in place of William C. Washburn, of New York. Mr. Craven was a lawyer in Seattle, and Mr. Galloway was secretary to Senator Ellison D. Smith of South Carolina and clerk to the Immigration Committee in the Senate. The new Commission as reorganized includes John A. McIlhenny of Louisiana as president, the only member of the Taft Commission to be retained in office.

Consular and Diplomatic Services.—The course of the administration with refernce to consular officers and diplomatic secretaries is regarded as admirable by the National Civil Service Reform League. Previous to his election the President declared that he was in hearty sympathy with the executive orders of June 27, 1906, and Nov. 26, 1909, requiring that promotions in the consular service and from the lower positions up through the secretaryship in the diplomatic service shall be based on efficiency records. These orders also provided that original appointments shall be made from persons whose qualifications have been tested by a non-competitive examination. It was well known, however, that many members of Congress were hostile to the merit system as applied by Presidents Roosevelt and Taft. This hostility showed itself at the beginning of the Sixty-third Congress. The principal criticism was that the apportionment idea had not been properly observed and that the South particularly had suffered because of favoritism shown to Republican states. The system was also attacked as an impracticable one. Following the resignation of Frank H. Mason, for many years consul-general at Paris, in June, Secretary Bryan issued a statemnt in which the President was declared to be "entirely in sympathy with the purpose of the executive order governing appointments and promotions in the consular service." The records of changes in both the consular service and secretaryships in the diplomatic service show that the orders have been consistently adhered to. Furthermore, Wilbur J. Carr has been retained as Director of the Consular Service, a post which he has held since Jan. 20, 1909.

Excellent as is the record of the Administration on this part of the foreign service, its course with reference to ministerships is open to serious criticism. Under Presidents Roosevelt and Taft an effort had been made to surround at least part of the diplomatic service above secretaryships with a merit tradition. In

applying this policy several posts of ministers had been filled by men trained in diplomacy through years of experience in consular posts and as secretaries of embassies and legations. Manifestly if this principle could be permanently established the diplomatic service of the United States would offer opportunity for a real career in diplomacy, the effect of which would be felt in the lowest ranks of the foreign service because of the inducements thus held out to young men of superior qualifications and high ambition to enter the service in the lower grades.

An examination of changes in this part of the diplomatic service made since March 4 shows that this policy has been abandoned in a considerable number of cases and that experienced men have been displaced by the appointment of men who know nothing about the diplomatic service and whose records at home are comparatively obscure. According to the latest register of the Department of State, in the foreign service of the United States there are 11 ambassadors and 35 ministers. The Administration has already accepted the resignations of seven of the 11 ambassadors and 22 of the 35 ministers (see *The Diplomatic Service, supra*). Thirteen of the ministers dropped in this way had had several years' experience in the diplomatic service; none of the new appointees had ever had experience in the diplomatic service. The list of experienced men dropped includes James T. Dubois, Minister to Colombia, with a total of 23 years' experience in the service; Louis Einstein, continuously in service since 1903; George T. Weitzel who entered the service in 1909 after examination; Arthur M. Beaupré, Minister to Cuba, continuously in the service since 1897, when he was appointed through examination as a secretary of legation; and R. S. R. Hitt, continuously in the service since 1901. In the appointment of Henry Morgenthau of New York to be Ambassador to Turkey, *vice* William W. Rockhill, resigned, President Wilson rewarded the chairman of the Democratic Finance Committee in the last campaign and displaced the most experienced ambassador in the service. Mr. Rockhill had been in the diplomatic service continuously since 1892, when he was appointed Chief Clerk in the Department of State. He has served as Third Assistant Secretary of State, Minister to Greece, Roumania and Servia, and ambassador to China, Russia and Turkey.

Classification of Navy-Yard Mechanics.—On Dec. 7, 1912, President Taft by executive order placed in the classified service all artisans and supervising artisan positions under the jurisdiction of the Navy. The positions, which number about 20,000, were put under a competitive registration system by Secretary Tracey in 1891 and in 1896. This system was placed by President Cleveland under the jurisdiction of the Civil Service Commission. The places were considered classified for a long time, but in 1909 Attorney-General Wickersham declared that under the technicalities of the law they could not be held to be classified unless classification had been specially ordered by the President by revoking or modifying the navy-yard regulations. The effect of President Taft's order was, therefore, to restore these positions to the classified service.

Classification of Fourth-Class Postmasters.—On Oct. 15, 1912, President Taft placed within the classified service the balance of the fourth-class postmasters left unclassified by President Roosevelt's executive order of Nov. 30, 1908. This order completed one of the great steps toward the liberation of the postal service from the political influences which have so long hampered and obstructed its efficient administration. The order was the logical development of the system begun five years before by President Roosevelt for the fourth-class postmasters in the territory north of the Ohio and Potomac and east of the Mississippi.

President Taft's order was attacked by Democratic Congressmen as actuated by political motives. On Dec. 19, 1912, the President replied to these attacks. The President reminded Congress that he had repeatedly urged the passing of legislation which would give the Executive authority to classify all local-government officers, including postmasters of

the first, second and third classes, but that Congress had failed to act. On Jan. 13 Congress returned to the attack. On May 7, President Wilson amended the previous orders by providing that no fourth-class postmaster shall be given a competitive classified status unless he was appointed as a result of a competitive examination or shall be so appointed. This order provided that all vacancies in the offices shall be filled through examination conducted by the Civil Service commission or by post-office inspectors. For all post offices of the fourth class the incumbents of which were not appointed through competitive examinations, such tests will be held. Postmasters now in office may enter these examinations or not, as they choose. From the eligible list established by these examinations permanent appointments will be made from among the first three on the list, the present incumbents taking their chances of appointment with the other competitors. In taking this action the Administration departed from the rule which has governed all previous administrations when extensions of the civil-service classification were made, namely that the incumbents affected by the extension should be covered in. Simultaneously with the announcement of this order, Postmaster-General Burleson stated that it was his desire to secure the classification of postmasters of the second and third class.

The Civil Service Commission has ruled that it has jurisdiction over the political activity of fourth-class postmasters required by the executive order of May 7 to pass a competitive examination before receiving a competitive classified status. This prohibits the political activity of thousands of fourth-class postmasters who will not be able to enter competitive examinations for many months, as the Commission has not yet secured sufficient appropriation to hold the examinations.

Exemptions from the Merit System.—The first concrete attempt in the Senate to secure patronage at the expense of the merit system was exposed in the Underwood Tariff bill. In providing for the collection of the income tax the Senate Committee on Finance appropriated $1,200,000 for salaries and supplies and inserted the provision that for a period of two years the income-tax force shall be appointed without complying with the provisions of the civil-service law. The only excuse for such a provision would have been inability on the part of the Civil Service Commission to supply an adequate force within a reasonable time, but the registers of the Commission contained a full complement of eligibles from whom selection could be made for these positions. On Aug. 29 the Senate adopted the amendment by the closest vote of the session. No further action was taken until Sept. 9, when without any explanation Senator James on behalf of the Finance Committee offered an amendment striking out the express provision prohibiting for two years appointments to the field force from the civil-service registers, so that the proviso read:

> Agents, deputy colectors, inspectors and other employees . . . shall be appointed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury under such rules and regulations as may be fixed . . . to insure faithful and competent service.

The James amendment was adopted without a roll call and became law when the President signed the Tariff bill on Oct. 3. Civil-service reformers urged President Wilson to issue an executive order requiring that appointments to the income-tax force be made through examination and from eligible lists, but no such order was issued. The only action thus far taken by the Administration was the announcemnt of regulations by Secretary McAdoo which provide only for pass examinations.

Following closely on the heels of this attack on the merit system came a second successful attempt to evade the civil-service law, in the shape of a rider to the Urgent Deficiency Appropriation bill which removed every subordinate of a collector of internal revenue or U. S. marshal from the competitive classified service. The provision, proposed by Senator Overman, was inserted in the item appropriating $29,000 for the Civil Service Commission for the examinations of fourth-class postmasters and

was described by the Senator as removing from the competitive classified service deputy collectors of internal revenue and deputy marshals required to give bond to their superiors. The item was considered in the Senate on Oct. 3, when Senators Lane and Hughes (Democrats) led the attack against the order. The amendment was, however, adopted by the Senate by practically a party vote. The full meaning of the amendment was apparently not understood as there was no discussion of the clause which made it possible to remove not only deputy collectors and deputies from the competitive classified service, but every other employee in the office of a collector or marshal from the messenger up to deputy. When the bill reached the House the Senate amendment was formally disagreed to and the measure went into conference. The provision came up for debate on Oct. 10, when the dangerous nature of the order was clearly shown. By a vote of 111 to 106 the Senate amendment was agreed to. As soon as the bill passed both Houses, the executive officers of the National Civil Service Reform League urged the President to veto the measure because of the spoils rider. The President, however, approved the bill as he was "convinced after a careful examination of the facts that the offices of deputy collector and deputy marshal were never intended to be included under the ordinary provisions of the civil-service law." Civil-service reformers through the national association took issue with the President on this point, as the legality of the classification of both deputy collector and deputy marshals has been upheld in formal opinions of the attorney-general. It was also pointed out that the bond required of the deputy is protection to the collector against the misconduct of his deputies, a fact generally recognized in civil-service administration.

A third evasion of the merit system was authorized by an amendment to the Currency bill proposed by Senator Owen on Dec. 18 and adopted by a vote of 39 to 34, empowering the Federal Reserve Board

to employ such attorneys, experts, assistants, clerks, or other employees as may be deemed necessary to properly conduct the business of said Board and to accomplish the purposes of this Act. All salaries, allowances, and expenses of those employed to be fixed in advance by said Board and to be paid in the same manner as the salaries of the members of said Board. All such . . . employees to be appointed without regard to the provisions of the Act of Jan. 6, 1883, and amendments thereto, or any rule or regulation made in pursuance thereof.

Senator Lane (Ore.) was the only Democrat voting against the amendment. An attempt by Senator Brandegee (Conn.) the following day to strike out the spoils provision was defeated by the casting vote of Vice-President Marshall, although Senator Hitchcock (Neb.) joined Senator Lane in opposition to their Democratic colleagues. Before the final passage of the bill in the Senate a proviso, proposed by Senator Jones (Wash.), "that nothing herein contained shall prevent the President from placing said employees in the classified service," was added to the Owen amendment. In spite of vigorous protests by civil-service reformers, the provision was approved in the conference on the bill and enacted in the final measure signed by President Wilson on Dec. 23.

State Civil Service.—November, 1912, saw the people of Colorado by means of the initiative extend the jurisdiction of the state Civil Service Commission to the entire state service. The original civil-service law secured in the 1907, after ten years of fighting, extended only to state institutions and the Civil Service Commission.

In New York Governor Sulzer appointed to the Civil Service Commission three new commissioners, none of whom had ever had any experience in civil-service matters and all of whom were known to have been active in politics at various times. The Commission has extended the competitive principle to the employments in the tuberculosis hospitals throughout the state, the recently reorganized Department of Efficiency and Economy, and the Department of Highways. The Commission has, however, allowed the State Hospital Commission to be reorganized on a political basis. It was active in securing the passage of the Patrie bill providing

for overlapping terms of six years each for civil-service commissioners. The bill was objectionable because it made mandatory the exemption of the secretary of every civil-service commission in the state.

An attempt in Illinois to repeal the civil-service law was defeated on May 7. The record of the vote showed that 13 representatives who had signed pledges "to oppose the repeal of any of the civil-service laws" voted against the merit system.

Municipal Civil Service.—An effort to repeal the civil-service law in Philadelphia was overwhelmingly defeated in the Pennsylvania legislature at its 1913 session.

The entire municipal service of Minneapolis was brought under the merit system by an act of the Minnesota legislature passed in 1913; 6,700 employees were affected.

On Dec. 21, 1911, the late Mayor Gaynor of New York sent a letter to all of his commissioners in which he ordered that the policy of appointing in numerical order from the head of the list should be extended to all departments and bureaus under the Mayor beginning with Jan. 1, 1912. Such procedure has been followed and serious abuses which obtained under the rule allowing the head of the department the choice of one out of three have been eliminated. Dr. Lederle, head of the Department of Health, considerably extended the order. In cases of advancement in salary within a civil-service salary grade he appoints the employee highest on the promotion eligible list for the next higher grade. In the absence of a promotion eligible list he advances to the higher salary the employee having the best civil-service efficiency and seniority record. Instead of establishing separate promotion eligible lists for each bureau and division of the department, as is permitted by the civil-service rules, he establishes a single promotion eligible list for the entire department. As vacancies are of more frequent occurrence in the department than they are in any single bureau of the department this system increases the chances of each individual on the list.

Denver, in adopting the commission form of government in February, 1913, extended the jurisdiction of the Civil Service Commission from the departments of fire, police, public works and public utilities, to the entire city and county services.

Two cities in Michigan, Detroit and Grand Rapids, at charter elections held on April 7, 1913, approved amendments providing for the competitive system.

Charter elections have been recently held in a number of cities in Ohio with the result that the provisions of the state civil-service law have either been reënacted or special civil-service chapters adopted. Cleveland, on July 1, voted in favor of a charter containing a comprehensive civil-service section. On Aug. 12 and Aug. 27 the cities of Dayton and Springfield adopted the city-manager scheme of government. The Springfield charter called attention to the provisions of the state law, but the Dayton charter includes a civil-service chapter, some provisions of which are in direct violation of the state law. The chief examiner is made the employment officer of the city. He is authorized to certify to the city manager any name on an eligible list to fill a vacancy. The state law specifically provides for the certification of the first three names. By the charter a removed employee is allowed to appeal to the Civil Service Commission from the decision of the head of the department. This provision is contrary to the state civil-service law, which does not allow any appeal either to the commission or to the courts.

Civil Service Associations.—A meeting of the National Assembly of Civil Service Commissions was held in New York City, June 12-14, 1913, at which a committee was appointed to prepare a model civil-service law. John T. Doyle, Washington, D. C., secretary of the Federal Commission, was reëlected secretary.

The annual meeting of the National Civil Service Reform League was held at Boston, December 11 and 12, 1913. Richard H. Dana, Cambridge, was elected president, Robert D. Jenks, of Philadelphia, was reëlected chairman of the council, Robert W. Belcher, secretary, and George T. Keyes, assistant secretary. The offices of the League are at 79 Wall Street, New York.

VI. STATE AND COUNTY GOVERNMENT

JOHN M. MATHEWS

In the following series of tables the more important facts relative to the forty-eight states which at present constitute the American Union are brought together for convenient reference:

1. The first table gives the area and population of the states, together with the date upon which they severally ratified the constitution of the United States, or upon which they were admitted to the Union. The population at 1900 and 1910 is given, together with the percentage of increase since 1900, and the rank of the several states in population in 1910.

The population of the continental United States at the thirteenth census, taken April 15, 1910, was 91,402,151, an increase of 15,977,691 over the population on June 1, 1900, and an increase of 21 per cent., as compared with an increase of 22.7 per cent. in 1900. The states in which the population increased more than 50 per cent. include Oklahoma, New Mexico, Arizona, Nevada, Washington, Oregon, California, North Dakota, Montana, Wyoming, and Idaho. All these states are situated in the western half of the United States.

Including Alaska, Hawaii, Porto Rico, and military persons abroad, the population was 93,402,151. If the population of the Philippine Islands (7,635,426 in 1903) is added, with estimates for Guam, Samoa and the Canal, the total population of the United States and possessions on April 15, 1910, was 101,100,000.

The new apportionment of state representatives in Congress is based upon the population as given upon the following page.

2. The second table gives for each state the assessed valuation of property as made in 1911 or 1912; the total state indebtedness and the amount of sinking funds held against the same; the appropriations for the annual expenses of the state, which, in some cases, indicate the actual revenue of the year; and the total expenditures for the year. The data furnished in this table were courteously supplied by the treasurers or comptrollers of the several states.

3. The third table revises and extends the table on pp. 184-9 of the YEAR BOOK for 1910, which gives the facts in regard to the state constitutions; dates of adoption; methods of ratification of present and former constitutions, and the existing methods of amendment authorized by law in each state.

4. The fourth table gives the state governors; their politics; the length of the governor's term in each state; the date of the beginning and ending of his term; and the governor's salary.

5. The fifth table presents the main features regarding the state legislatures, including the political complexion of the legislatures; number of members of each house; length of the term; frequency of session; the limit upon duration of sessions, if any; and the salaries of members of both branches of the legislature.

6. The sixth table indicates the main facts regarding the state judiciary; the name of the courts and number of judges; how chosen; length of term; and salary.

7. The seventh table indicates the number of counties in each state, and the general facts as to the county officers, their titles, which, as a rule, indicate their functions, and whether elected or appointed.

An eighth table appeared in the YEAR BOOK for 1910, giving the census returns of receipts and payments of counties for 1902.

VI. STATE AND COUNTY GOVERNMENT

I. THE STATES OF THE UNION

Area, Population, Dates of Ratification and Organization, and Order of Admission to the Union

	Ratification of Constitution	Area	Population, 1900	Population, 1910	Percentage of Increase, 1900–1910	Rank in Population 1910
New Hampshire	June 21, 1788	9,031	411,588	430,572	4.6	39
Massachusetts	February 6, 1788	8,039	2,805,346	3,366,410	20.0	6
Rhode Island	May 29, 1790	1,067	428,556	542,610	26.6	38
Connecticut	January 9, 1788	4,820	908,420	1,114,756	22.7	31
New York	July 26, 1788	47,654	7,268,894	9,113,614	25.4	1
New Jersey	December 18, 1788	7,514	1,883,669	2,537,167	34.7	11
Pennsylvania	December 12, 1787	44,832	6,302,115	7,665,111	21.6	2
Delaware	December 7, 1787	1,965	184,735	202,322	9.5	46
Maryland	April 28, 1788	9,941	1,188,044	1,294,450	9.0	27
Virginia	June 26, 1788	40,262	1,854,184	2,061,612	11.2	20
North Carolina	November 21, 1789	48,740	1,893,810	2,206,287	16.5	16
South Carolina	May 23, 1788	30,495	1,340,316	1,515,400	13.1	26
Georgia	January 2, 1788	58,725	2,216,331	2,609,121	17.7	10

	Date of Admission	Area	Population, 1900	Population, 1910	Percentage of Increase, 1900–1910	Rank in Population, 1910
Kentucky	February 4, 1791	40,181	2,147,174	2,289,905	6.6	14
Vermont	February 18, 1791	9,124	343,641	355,956	3.6	42
Tennessee	June 1, 1796	41,687	2,020,616	2,184,789	8.1	17
Maine	March 3, 1820	29,895	694,466	742,371	6.9	34
Texas	December 29, 1845	262,398	3,048,710	3,896,543	27.8	5
West Virginia	June 20, 1863	24,022	958,800	1,221,119	27.4	28
Ohio	April 30, 1802	40,740	4,157,545	4,767,121	14.7	4
Louisiana	April 8, 1812	45,409	1,381,625	1,656,388	19.9	24
Indiana	December 11, 1816	35,885	2,516,462	2,700,876	7.3	9
Mississippi	December 10, 1817	46,362	1,551,270	1,797,114	15.8	21
Illinois	December 3, 1818	56,002	4,821,550	5,638,591	16.9	3
Alabama	December 14, 1819	51,279	1,828,697	2,138,093	16.9	18
Missouri	March 2, 1821	68,727	3,106,665	3,293,335	6.0	7
Arkansas	June 15, 1836	52,525	1,311,564	1,574,449	66.2	25
Michigan	January 26, 1836	57,480	2,420,982	2,810,173	16.1	8
Florida	March 3, 1845	54,861	528,542	752,619	42.1	33
Iowa	December 28, 1846	55,586	2,231,853	2,224,771	.3	15
Wisconsin	May 29, 1848	55,256	2,069,042	2,333,860	12.7	13
California	September 9, 1850	156,092	1,485,053	2,377,549	60.1	12
Minnesota	May 11, 1858	80,858	1,751,394	2,075,708	18.5	19
Oregon	February 14, 1859	95,607	413,536	672,765	62.7	35
Kansas	January 29, 1861	81,774	1,470,495	1,690,949	15.0	22
Nevada	March 21, 1864	109,821	42,335	81,875	93.4	48
Nebraska	February 9, 1867	76,808	1,066,300	1,192,214	11.8	29
Colorado	March 3, 1875	103,658	539,700	799,024	48.0	32
North Dakota	February 22, 1889	70,183	319,146	577,056	80.8	37
South Dakota	February 22, 1889	76,868	401,570	583,888	45.4	36
Montana	February 22, 1889	145,776	243,329	376,053	54.5	40
Washington	February 22, 1889	66,836	518,103	1,141,990	120.4	30
Idaho	July 3, 1890	83,779	161,772	325,594	101.3	44
Wyoming	July 10, 1890	97,594	92,531	145,965	57.7	47
Utah	July 16, 1894	82,184	276,749	373,351	34.9	41
Oklahoma	November 16, 1907	69,414	790,391	1,657,155	109.7	23
New Mexico	January 6, 1912	122,580	195,310	327,301	67.6	43
Arizona	February 14, 1912	113,020	122,931	204,354	66.2	45

Area.—The total area of continental United States is 2,974,159 sq. miles. The total area, including Alaska and Hawaii, is 3,624,122 sq. miles. The area of Alaska is 590,884 sq. miles; of the Hawaiian Islands, 6,449 sq. miles; of the Philippine Islands, 115,026 sq. miles; of Porto Rico, 3,435 sq. miles; and of the Panama Canal Zone, 448 sq. miles.

II. STATE INDEBTEDNESS, TAXATION, REVENUES, AND EXPENDITURES

The figures in the following table, for the most part courteously supplied by the treasurers or auditors of the various states, are the latest available. They relate in general to the fiscal year ending in 1913; in the case of states whose fiscal year coincides with the calendar year, the figures are for the year ending December 31, 1912.

State	Assessed Value of Property	Tax Rate per $1,000	Bonded Indebtedness	Sinking Fund	Total Receipts	Total Expenditures
Alabama	$570,807,488	$6.50	$9,057,000	None	$6,288,992	$6,451,776
Arizona	375,862,414	4.95	[1]3,009,275	$10,394	3,825,367	3,193,352
Arkansas	427,468,099	6.875	1,250,500	14,434	6,902,386	6,812,486
California	2,920,400,512	None	13,806,500	.....	21,445,956	18,691,877
Colorado	413,835,450	4.10	4,464,949	None	3,580,445	3,837,423
Connecticut	1,102,990,545	Various	7,064,100	.....	.....	.....
Delaware	.....	.....	826,785	113,500	656,481	612,665
Florida	212,887,518	7.50	601,567	.....	3,023,697	2,870,602
Georgia	842,358,342	5.00	6,734,202	100,000	6,014,109	5,627,668
Idaho	422,239,989	2.48	2,381,250	488,064	[2]6,858,682	[2]6,545,745
Illinois	2,343,673,252	3.80	17,500	None	26,957,187	25,882,257
Indiana	1,890,460,710	0.90	1,010,163	378,271	10,052,463	10,091,329
Iowa	765,972,994	3.90	None	1,379,827	5,423,110	5,084,769
Kansas	2,809,825,069	1.20	370,000	103,878	7,758,826	7,892,920
Kentucky	851,550,237	5.00	None	10,306	7,666,780	7,769,131
Louisiana	550,517,808	5.00	11,108,300	None	7,219,742	7,355,785
Maine	416,891,264	21.55	269,000	None	5,321,711	5,366,785
Maryland	979,309,976	2.325	13,028,096	7,201,837	8,908,454	8,553,744
Massachusetts	5,479,279,693	17.92	117,480,662	38,250,410	17,680,502	17,092,466
Michigan	2,288,000,000	3.76	None	9,249,408	22,414,877	13,165,468
Minnesota	1,339,758,747	2.35	None	None	8,958,843	8,869,130
Mississippi	411,551,004	6.00	3,923,752	None	4,501,447	4,426,591
Missouri	1,757,026,134	1.90	3,500,000	.....	8,511,831	.....
Montana	382,807,277	2.50	658,000	.....	.....	.....
Nebraska	463,371,889	5.20	None	None	5,178,233	5,142,347
Nevada	101,087,079	6.00	680,000	None	1,269,431	1,239,085
New Hampshire	398,714,464	16.00	1,156,000	None	3,209,751	3,273,675
New Jersey	2,289,770,280	None	None	None	9,657,366	7,696,475
New Mexico	72,457,454	13.50	2,619,000	.....	.....	.....
New York	11,128,498,055	1.00	108,355,660	26,013,597	107,763,064	101,495,444
North Carolina	598,281,563	4.70	7,539,000	None	3,321,647	3,246,529
North Dakota	294,770,325	4.40	937,300	119,985	4,564,753	4,349,070
Ohio	[3]6,481,059,158	0.451	None	103,978	15,578,471	14,697,184
Oklahoma	1,777,079,420	3.50	4,367,000	.....	.....	.....
Oregon	905,011,679	1.25	None	None	5,356,115	4,487,119
Pennsylvania	5,208,131,613	None	659,160	785,510	32,374,890	35,516,410
Rhode Island	618,834,569	0.90	5,580,000	781,102	3,250,631	3,184,761
South Carolina	291,531,003	5.75	6,272,351	922,149	3,972,032	3,205,816
South Dakota	1,196,708,000	1.00	None	925,135	5,048,406	4,123,271
Tennessee	526,010,886	3.50	11,458,000	785,120	4,666,537	4,122,852
Texas	2,532,710,050	2.66⅔	3,977,500	None	18,519,542	18,517,589
Utah	200,299,207	7.50	1,210,000	240,000	3,668,004	3,954,599
Vermont	222,989,343	None	855,470	None	2,008,132	3,019,517
Virginia	776,129,648	3.50	21,718,932	.....	7,465,872	7,118,578
Washington[4]	1,005,086,000	5.79	331,024	1,928,695	7,311,447	5,535,871
West Virginia	1,168,012,658	0.10	None	1,616,515	5,491,206	5,486,307
Wisconsin	2,841,630,416	0.9033	None	None	15,456,999	15,725,015
Wyoming	182,185,927	3.08	117,000	None	1,320,153	1,017,263

[1] Includes County and City Indebtedness, $2,098,302.86. [2] Figures are for Oct., 1910–Oct., 1912. [3] Property assessed at full value. [4] Biennial report.

III. STATE CONSTITUTIONS

For the revision of the table of state constitutions on pp. 184–9 of the AMERICAN YEAR BOOK for 1910, it is necessary only to note that the following states have adopted popular initiative as a second means of proposing amendments: California (1911), Colorado (1911), Florida (1912), Michigan (1913), Nebraska (1912), Ohio (1912) and Texas (1911). The data for Arizona and New Mexico, admitted as states in 1912, are as follows:

State	Date	Method of Adoption		Present Method of Amendment			Present Method of General Revision	
		Framed by	Popular Ratification	Proposed by	Limitations	Popular Ratification	Convention Called by	Popular Ratification
New Mexico	1911	Convention	Yes	⅔ members of each house	Not more than three at one time	Majority equal to 40 per cent. of total vote in one-half counties	¾ of each house and popular vote	Majority of votes
Arizona	1911	Convention	Yes	(1) Majority of each house (2) Popular initiative		Majority vote on question	Popular vote	Majority vote

IV. STATE AND TERRITORIAL GOVERNORS

State or Territory	Governor	Capital	Length of Term	Term Expires	Salary
Maine	*Wm. T. Haines*	Augusta	2	January, 1915	$3,000
New Hampshire	S. D. Felker	Concord	2	January, 1915	3,000
Vermont	*A. M. Fletcher*	Montpelier	2	October, 1914	2,500
Massachusetts	D. I. Walsh	Boston	1	January, 1915	8,000
Rhode Island	*A. J. Pothier*	Providence	2	January, 1915	3,000
Connecticut	S. E. Baldwin	Hartford	2	January, 1915	4,000
New York	M. H. Glynn	Albany	2	January, 1915	10,000
New Jersey	J. H. Fielder	Trenton	3	January, 1917	10,000
Pennsylvania	*J. K. Tener*	Harrisburg	4	January, 1915	10,000
Delaware	*C. R. Miller*	Dover	4	January, 1917	4,000
Maryland	*P. L. Goldsborough*	Annapolis	4	January, 1916	4,500
Virginia	H. C Stuart	Richmond	4	February, 1918	5,000
West Virginia	*H. D. Hatfield*	Charleston	4	March, 1917	5,000
North Carolina	Locke Craig	Raleigh	4	January, 1917	5,000
South Carolina	C. J. Blease	Columbia	2	January, 1915	3,000

Democrats in Roman, Republicans in *Italics*.

State or Territory	Governor	Capital	Length of Term	Term Expires	Salary
Georgia	J. M. Slaton	Atlanta	2	June, 1915	$5,000
Florida	Park Trammell	Tallahassee	4	January, 1917	6,000
Kentucky	J. B. McCreary	Frankfort	4	December, 1915	6,500
Tennessee	*B. W. Hooper*	Nashville	2	January, 1915	4,000
Alabama	Emmett O'Neal	Montgomery	4	January, 1915	7,500
Mississippi	Earl Brewer	Jackson	4	January, 1916	4,500
Arkansas	J. T. Robinson	Little Rock	2	January, 1915	4,000
Louisiana	Luther E. Hall	Baton Rouge	4	May, 1916	5,000
Texas	O. B. Colquitt	Austin	2	January, 1915	4,000
Oklahoma	Lee Cruce	Oklahoma City	4	January, 1915	4,500
Ohio	James M. Cox	Columbus	2	January, 1915	10,000
Indiana	S. M. Ralston	Indianapolis	4	January, 1917	8,000
Illinois	Edward F. Dunne	Springfield	4	January, 1917	12,000
Michigan	W. N. Ferris	Lansing	2	January, 1915	5,000
Wisconsin	*F. E. McGovern*	Madison	2	January, 1915	5,000
Minnesota	*A. O. Eberhart*	St. Paul	2	January, 1915	7,000
Iowa	*Geo. W. Clarke*	Des Moines	2	January, 1915	5,000
Missouri	E. W. Major	Jefferson City	4	January, 1917	5,000
Kansas	Geo. H. Hodges	Topeka	2	January, 1915	5,000
Nebraska	J. H. Morehead	Lincoln	2	January, 1915	2,500
South Dakota	*F. M. Byrne*	Pierre	2	January, 1915	3,000
North Dakota	*L. B. Hanna*	Bismarck	2	January, 1915	5,000
Montana	S. V. Stewart	Helena	4	January, 1917	7,500
Idaho	*J. M. Haines*	Boise	2	January, 1915	5,000
Wyoming	J. M. Carey	Cheyenne	4	January, 1915	4,000
Colorado	E. M. Ammons	Denver	2	January, 1915	5,000
New Mexico	W. C. McDonald	Santa Fe	4	January, 1916	5,000
Arizona	G. W. P. Hunt	Phoenix	2	January, 1915	4,000
Utah	*Wm. Spry*	Salt Lake City	4	January, 1917	4,000
Nevada	*T. L. Oddie*	Carson City	4	January, 1915	4,000
California	H. W. Johnson	Sacramento	4	January, 1915	10,000
Oregon	Oswald West	Salem	4	January, 1915	5,000
Washington	Ernest Lister	Olympia	4	January, 1917	6,000
Alaska	J. F. A. Strong	Juneau	4	May, 1917	7,000
Hawaii	*W. F. Frear*	Honolulu	4	June, 1915	7,000
Porto Rico	Arthur Yager	San Juan	4	March, 1917	8,000

Democrats in Roman, Republicans in *Italics*, Progressives in small caps.

	Number of Members		Length of Term (years)		Regular Sessions	Regular Session Begins	Limit of Session (days)	Salary
	Senate	House	Senate	House				
Maine	31	151	2	2	Biennial	January, 1915	None	$300 per year.
New Hampshire	24	402	2	2	Biennial	January, 1915	None	200 per term.
Vermont	30	246	2	2	Biennial	October, 1914	None	4 per day.
Massachusetts	40	240	1	1	Annual	January, 1914	None	1,000 per year.
Rhode Island	38	100	2	2	Annual	January, 1914	60	5 per day.
Connecticut[1]	35	258	2	2	Biennial	January, 1915	5 mo.	300 per year.
New York[2]	51	150	2	1	Annual	January, 1914	None	$1,500 per year.
New Jersey	21	60	3	1	Annual	January, 1914	None	500 per year.
Pennsylvania	50	207	4	2	Biennial	January, 1915	None	1,500 per year.
Delaware[1]	17	35	4	2	Biennial	January, 1915	60	5 per day.
Maryland	27	102	4	2	Biennial	January, 1914	90	$5 per day.
Virginia	40	100	4	2	Biennial	January, 1914	60	500 per session.
West Virginia[2]	30	87	4	2	Biennial	January, 1915	45	5 per day.
North Carolina	51	120	2	2	Biennial	January, 1915	60	5 per day.
South Carolina	42	124	4	2	Annual	January, 1914	None	200 per session.
Georgia	44	184	2	2	Annual	June, 1914	50	4 per day.
Florida	32	71	4	2	Biennial	April, 1915	60	6 per day.
Kentucky	38	100	4	2	Biennial	January, 1914	60	$10 per day.
Tennessee	33	99	2	2	Biennial	January, 1915	75	4 per day.
Alabama	35	106	4	4	Quadrennial	January, 1915	50	4 per day.
Mississippi	45	136	4	4	Biennial	January, 1914	45	500 per session.
Arkansas	36	100	2	2	Biennial	January, 1915	90	6 per day.
Louisiana	42	115	4	4	Biennial	May, 1914	60	5 per day.
Texas	31	143	4	2	Biennial	January, 1915	None	5 per day, for 60 days, $2 per day thereafter.
Oklahoma	44	109	4	2	Biennial	January, 1915	.....	6 per day, for 60 days, $2 per day thereafter.

Democratic legislatures in Roman; Republican in *Italics*. Those marked * are doubtful; those marked x have Progressive majorities; [1] Republican Senate, Democratic House; [2] Democratic Senate, Republican House.

State or Territory	Number of Members		Length of Term (years)		Regular Sessions	Sessions Begin	Limit of Session (days)	Salary
	Senate	House	Senate	House				
Ohio	33	123	2	2	Biennial	January, 1915	None	$1,000 per year.
Indiana	50	100	4	2	Biennial	January, 1915	60	6 per day.
*Illinois**	51	153	4	2	Biennial	January, 1915	None	2,000 per session.
Michigan	32	100	2	2	Biennial	January, 1915	None	800 regular session. 5 per day, extra session.
Wisconsin	33	100	4	2	Biennial	January, 1915	None	500 per session.
Minnesota	63	121	4	2	Biennial	January, 1915	90	1,000 per session.
Iowa	50	108	4	2	Biennial	January, 1915	None	1,000 regular session. 10 per day, extra session.
Missouri	34	142	4	2	Biennial	January, 1915	70	5 per day.
Kansas	40	125	4	2	Biennial	January, 1915	50	3 per day.
Nebraska[1]	33	100	2	2	Biennial	January, 1915	None	600 per session.
South Dakota	45	104	2	2	Biennial	January, 1915	60	5 per day.
North Dakota	50	111	4	2	Biennial	January, 1915	60	5 per day.
Montana	32	86	4	2	Biennial	January, 1915	60	$10 per day.
Idaho	23	60	2	2	Biennial	January, 1915	60	5 per day.
Wyoming	27	57	4	2	Biennial	January, 1915	40	8 per day.
Colorado	35	65	4	2	Biennial	January, 1915	None	1,000 per session.
New Mexico	24	49	4	2	Biennial	January, 1914	60	5 per day.
Arizona	19	35	2	2	Biennial	January, 1915	60	7 per day.
Utah	18	45	4	2	Biennial	January, 1915	60	4 per day.
Nevada	22	53	4	2	Biennial	January, 1915	60	10 per day.
California†	40	80	4	2	Biennial	January, 1915	§	1,000 regular session. 10 per day, extra session.
Oregon	30	60	4	2	Biennial	January, 1915	40	3 per day.
Washington	42	97	4	2	Biennial	January, 1915	60	5 per day.
Alaska	8	16	4	2	Biennial	March, 1915	60	$15 per day.
Hawaii	15	30	4	2	Biennial	February, 1915	90	400 per year.
Porto Rico	11	35	4	2	Annual	January, 1914	60	5 per day, members of House. 3,000 per year for 6 members of Senate, 5 serving without pay.

Democratic legislatures in Roman; Republican in *Italics*. Those marked * are doubtful; those marked † have Progressive majorities; [1] Republican Senate, Democratic House; [2] Democratic Senate, Republican House. § Split session; first part 30 days; recess 30 days; no limit to second part.

Legislatures in Session, 1913: In addition to the 39 states whose legislatures met in regular session in 1913 (*A. Y. B.*, 1912, pp. 176–7), four states, Arizona, Louisiana, New Mexico, and Vermont, held special sessions. The only states in which the legislature did not meet were Alabama, Kentucky, Maryland, Mississippi, and Virginia. Several states held special sessions in addition to the regular sessions.

State	Highest State Court					Other Courts				
	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary	Name	No. of Dists.	No. of Judges	Term (years)	How Chosen
Maine	Supreme Court	8	7	Gov. and Council	$5,000	Nisi Prius	.....	.....	.....	.....
						Superior Courts in 2 counties	.....	2	7	Gov. and Council
New Hampshire	Supreme Court	5	(a)	Gov. and Council	4,200	Superior Court	.....	4	(a)	Gov. and Council
Vermont	Supreme Court	5	2	Legislature	4,000	County Courts	14	.....	.....	Legislature
Massachusetts	Supreme Court	7	(b)	Gov. and Council	10,500	Superior Court	.....	28	(b)	Gov. and Council
Rhode Island	Supreme Court	5	(c)	Legislature	6,000	Superior Court	.....	7	(c)	Legislature
Connecticut	Court of Errors	6	8	Gov. and Legislature	8,000	Superior Court	.....	12	8	Gov. and Legis.
						Court of Common Pleas in 5 counties				
New York	Court of Appeals	9	14	Elected	$14,200	Appellate Division	4	22	.....	.....
					13,700	Supreme Court	9	102	14	Elected
						County Courts	.....	.....	6	Elected
New Jersey	Court of Errors and Appeals	16	7	Gov. and Senate	13,000 / 12,000	Chancery	.....	9	6	Gov. and Senate
						Supreme Court	9	9	7	Gov. and Senate
						Circuit Court	7	7	7	Gov. and Senate
Pennsylvania	Supreme Court	7	21	Elected	13,500 / 13,000	Superior Court	5	7	10	Elected
						Court of Common Pleas	.....	.....	.....	.....
Delaware	Court of Errors and Appeals	6	12	Gov. and Senate	.....	Chancellor	.....	.....	.....	Gov. and Senate
Maryland	Court of Appeals	8	15	Elected by Districts	5,800	Circuit Courts	8	24	15	Elected
						Special Courts, in Balt.	.....	.....	.....	.....
Virginia	Supreme Court of Appeals	5	12	Legislature	5,200 / 5,000	Circuit Courts	31	31	8	Legislature
West Virginia	Supreme Court of Appeals	4	12	Elected	.....	Circuit Courts	18	.....	8	Elected
North Carolina	Supreme Court	5	8	Elected	4,650	Superior Court	16	16	8	Elected
South Carolina	Supreme Court	4	8	Legislature	3,000	Circuit Courts	.....	.....	4	Elected
Georgia	Supreme Court	6	6	Elected	4,000	Court of Appeals	3	3	6	Elected
						Superior Court	38	38	4	Elected
Florida	Supreme Court	5	6	Elected	3,600	Circuit Courts	11	11	6	Gov. and Senate
						County Courts	.....	.....	.....	.....

(a) Until 70 years of age. (b) During good behavior. (c) Until removed by the legislature.

State	Highest State Court					Other Courts				
	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary	Name	No. of Dists.	No. of Judges	Term (years)	How Chosen
Kentucky	Court of Appeals	7	8	Elected by districts	$5,000	Circuit Courts	36	Var.	6	Elected
Tennessee	Supreme Court	5	8	Elected	5,000	Court of Civil Appeals	.....	5	8	Elected
						Chancery Court	.....	12	.....	Elected
						Circuit Courts	.....	20	.....	Elected
						Criminal Court	.....	6	.....	Elected
Alabama	Supreme Court	7	6	Elected	5,000	Chancery Courts	5	5	6	Elected
						Circuit Courts	16	16	6	Elected
Mississippi	Supreme Court	3	9	Gov. and Senate	4,500	Chancery Courts	.....	.....	4	Gov. and Senate
						Circuit Courts	13	.....	4	Gov. and Senate
Arkansas	Supreme Court	5	8	Elected	4,000	Circuit Courts	17	.....	4	Elected
Louisiana	Supreme Court	5	.....	Elected	6,000	Circuit Courts of Appeals	6	.....	.....	.....
						District Courts	24	.....	4	Elected
Texas	Supreme Court	3	6	Elected	5,000	Court of Criminal Appeal	.....	3	6	Elected
						Courts of Civil Appeals	8	24	6	Elected
						District Courts	.....	.....	4	Elected
Oklahoma	Supreme Court	5	6	Elected	.....	Criminal Court of Appeals	.....	.....	.....	.....
						District Courts	21	.....	4	Elected
Ohio	Supreme Court	7	6	Elected	$6,500	Courts of Appeal	8	24	6	Elected
						Courts of Common Pleas	.....	.....	6	Elected
Indiana	Supreme Court	5	6	Elected	6,000	Appellate Courts	2	6	4	Elected
						Circuit Courts	92	92	6	Elected
						Superior Courts in 10 count's	.....	14	4	Elected
Illinois	Supreme Court	7	9	Elected	10,000	Courts of Appeal	4	15	.....	.....
						Circuit Courts	18	65	6	Elected
						County Courts	102	102	4	Elected
Michigan	Supreme Court	8	8	Elected	7,000	Circuit Courts	39	49	6	Elected
Wisconsin	Supreme Court	7	10	Elected	7,500	Circuit Courts	20	25	6	Elected
Minnesota	Supreme Court	5	6	Elected	7,000	District Courts	19	42	6	Elected
Iowa	Supreme Court	7	6	Elected	6,000	District Courts	21	59	4	Elected
Missouri	Supreme Court	7	10	Elected	4,500	Courts of Appeal	3	9	12	Elected
						Circuit Courts	37	56	6	Elected
Kansas	Supreme Court	7	6	Elected	4,000	District Courts	38	38	4	Elected
Nebraska	Supreme Court	7	6	Elected	4,500	District Courts	16	29	4	Elected
South Dakota	Supreme Court	5	6	Elected	3,000	Circuit Courts	12	12	4	Elected
North Dakota	Supreme Court	5	10	Elected	.....	District Courts	8	.....	4	Elected

VI. STATE JUDICIARY—*Continued*

State	Highest State Court					Other Courts				
	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary	Name	No. of Dists.	No. of Judges	Term (years)	How Chosen
Montana	Supreme Court	3	6	Elected	$6,000	District Courts	14	21	4	Elected
Idaho	Supreme Court	3	6	Elected	5,000	District Courts	7	.....	4	Elected
Wyoming	Supreme Court	3	8	Elected	5,000	District Courts	6	6	6	Elected
Colorado	Supreme Court	7	6	Elected	5,000	District Courts	13	.....	6	Elected
						County Courts	.....	.....	.....	.....
New Mexico	Supreme Court	3	8	Elected	6,000	District Courts	8	8	6	Elected
Arizona	Supreme Court	3	6	Elected	5,000	Superior Courts	14	14	4	Elected
Utah	Supreme Court	3	6	Elected	5,000	District Courts	7	12	4	Elected
Nevada	Supreme Court	3	6	Elected	6,000	District Courts	10	10	4	Elected
California	Supreme Court	7	12	Elected	8,000	Courts of Appeal	3	9	12	Elected
						Superior Courts	58	98	6	Elected
Oregon	Supreme Court	5	6	Elected	4,500	Circuit Courts	9	16	6	Elected
Washington	Supreme Court	9	6	Elected	5,000	Superior Courts	25	44	4	Elected

VII. COUNTY OFFICERS

State	No. of Counties	County Bd., No. of Members	County Judge	Probate Judge	Prosecuting Attorney	Sheriff	Coroner	Clerk of Court	Register of Probate	County Clerk	Register of Deeds	County Auditor	County Assessor	County Treasurer	County Surveyor	Supt. of Schools	Supt. of Poor	Health Officer
Maine	16	3		El.	El.	El.	App.	El.	El.	.....	El.			El.				
New Hampshire	10	3		App.	El.	El.	App.	App.	El.	.....	El.	App.	El.	El.		El.	App.	App.
Vermont	14		El.	dist.	El.	El.		App.		.....				El.				
Massachusetts	14	3		App.	Dist.	El.	.....	El.	El.	.....	El.			El.				
Rhode Island	5	None				App.		App.										
Connecticut	8	App. 3	s.	dist.	App.	El.	App.	App.				App.		App.				App
New York	61	Var.	El.	El.	El.	El.	El.	.....		El.	s.	s.		El.		dist.	El.	
New Jersey	21	Var.	App.	App.	App.	El.	El.	.....		El.	s.	App.		App.		App.	s.	
Pennsylvania	67	3	El.	El.	El.	El.	El.	El.	El.	App.	El.	El.	El.	El.	El.	El.	s.	App.
Delaware	3	7–10		El.		El.	El.	El.	El.	.....	El.			El.		App.		App.
Maryland	24	3–7		El.	El.	El.	App.	El.		App.	El.			El.	El.	App.		App.
Virginia	100	3–8		.....	El.	El.	App.	El.		El.	.....			El.	App.	App.	App.	
	18*a*																	
West Virginia	55	3			El.	El.	App.	El.		El.			El.		El.	El.	App.	App.

State	No. of Counties	County Bd., No. of Members	County Judge	Probate Judge	Prosecuting Attorney	Sheriff	Coroner	Clerk of Court	Register of Probate	County Clerk	Register of Deeds	County Auditor	County Assessor	County Treasurer	County Surveyor	Supt. of Schools	Supt. of Poor	Health Officer
North Carolina	100	3–5			Dist.	El.	El.	El.		.....	El.			El.	El.	App.		App.
South Carolina	43	Var.		El.	Dist.	El.	El.	El.		.....	s.	App.		El.		El.		
Georgia	148	3–5	sEl.	El.	Dist.	El.	El.	El.		El.	El.		App.	El.	El.	El.	s.	.....
Florida	50	5	El.	.....	Dist.	El.		El.					El.	El.	El.	El.		App.
Kentucky	120	8	El.	.....	El.	El.	El.	El.		El.			El.		El.	El.		App.
Tennessee	96	Var.	El.	.....	Dist.	El.	App.	El.		.....	El.	.....	s.	El.	App.	App.	App.	App.
Alabama	67	5	.....	El.	Dist.	El.	El.	El.			.....		El.	El.	App.	El.		App.
Mississippi	79	5			El.	El.	El.	El.				El.	El.	El.	El.	El.		App.
Louisiana	60*b*	Var.			El.	El.	El.	.....		El.	.....		El.	App.	El.	App.		App.
Texas	248	5	El.	.....	El.	El.		El.		El.	.....	App.	El.	El.	El.	El.	App.	App.
Oklahoma	77	3		El.	El.	El.	El.			El.	El.		El.	El.	El.	El.	.....	
Arkansas	75	Var.	El.	.....	Dist.	El.	El.	El.		.....	.....		El.	El.	El.	App.		
Missouri	114	3		El.	El.	El.	El.	El.		El.	s.	s.	El.	El.	El.	El.		App.
Ohio	88	3	El.	El.	El.	El.	El.	El.		El.		El.	App.	El.	El.			
Indiana	92	3(7)*c*	s.	s.	El.	El.	El.	El.			El.	El.	El.	El.	El.	App.	App.	App.
Illinois	102	Var.	El.	s.	El.	El.	El.	El.		El.	El.	.....	s.	El.	El.	El.	App.	
Michigan	83	Var.		El.	El.	El.	El.	.....		El.	El.	s.		El.	El.	El.	App.	
Wisconsin	71	Var.	El.	El.	El.	El.	El.	El.		El.	El.	.....	El.	El.	El.	El.	App.	
Minnesota	86	3–7		El.	El.	El.	El.	El.		.....	El.	El.		El.	El.	El.		.....
Iowa	99	3–7			El.	El.	El.	El.		.....		El.		El.	El.	App.	App.	
Kansas	105	3	El.	El.	El.	El.	El.	El.		El.	El.	s.		El.	El.	El.		
Nebraska	92	Var.	El.	.....	El.	El.	El.	El.		El.	s.			El.	El.	El.		
South Dakota	61	3–5	El.	.....	El.	El.	El.	El.		.....	El.	El.	s.	El.	El.	El.		App.
North Dakota	49	3–5	El.	El.	El.	El.	El.	El.		.....	El.	El.	s.	El.	El.	El.		App.
Montana	34	3			El.	El.	El.	El.		El.	.....	El.	El.	El.	El.	El.		App.
Idaho	23	3		El.	El.	El.	El.	El.		.....	.....	.....	El.	El.	El.	El.		
Wyoming	21	3		.....	El.	El.	El.	s.		El.	.....		El.	El.	El.	El.		App.
Colorado	60	3–5	El.	.....	Dist.	El.	El.	.....		El.	.....		El.	El.	El.	El.	.....	.....
New Mexico	26	3		El.	Dist.	El.	.....	El.	El.		.....		El.	El.	El.	El.		.....
Arizona	14	3		El.	El.	El.	El.	El.		s.	El.		El.	El.	El.	El.		App.
Utah	27	3			El.	El.		.....		El.	El.	s.	El.	El.	El.	El.		
Nevada	16	3		.....	El.	El.	.....	.....		El.	El.	El.	El.	El.	El.	El.		
California*	58	3–7	El.	.....	El.	El.	El.	.....		El.	s.	El.	El.	El.	El.	El.		App.
Oregon	34	2		.....	Dist.	El.	El.	.....		El.	s.	El.	El.	El.	El.	El.		
Washington	38	3		.....	El.	El.	El.	.....		El.	.....	El.	El.	El.	El.	El.		App.

a. Cities. *b*. Parishes. *c*. 3 county commissioners; 7 members in the county councils. El., an elective county office. s., a county office in some counties. App., an appointive county office. ....., duties performed by some other officer. dist., elected or appointed for district smaller than a county. Var., number varies in different counties. Dist., elected or appointed for district larger than a county. * In Los Angeles county, the most populous county in California, the short "ballot" has been adopted. The only county officers hereafter to be elected by popular vote are the board of supervisors, auditor, district attorney, and assessor. All others are to be appointed by the board of supervisors.

STATE ADMINISTRATION

A survey of state administration in the United States would include some account of the organization of state administrative authorities, the principal functions which they are designed to perform, the administrative machinery and methods adopted for carrying out these functions, and the relations between state and local administrative activity. This article does not attempt any complete survey of state administration, but sketches briefly some of the more important phases of the subject which are not treated elsewhere in this volume.

The Governor.—At the head of the state administration stand a number of officers, chief among whom is the governor. He is elected by the people for either a two- or four-year term, except in New Jersey, where his term is three years, and in Massachusetts, where his term is one year. In several states he is ineligible to succeed himself, a relic of the old idea of rotation in office. In a large majority of the states the governor is declared by the constitution to be vested with the supreme executive power of the state, and he is also charged with the duty of seeing that the laws are faithfully executed. The courts, however, have construed the powers of the governor somewhat narrowly, and have held that these general grants of power in the constitutions do not necessarily authorize him to exercise any specific functions.

The administrative position of the governor is fundamentally weak, inasmuch as he has no cabinet, such as that of the President, composed of heads of departments, appointed by himself. The governor is, however, granted certain specific administrative powers, such as the power of calling out the militia to execute the laws and suppress insurrection, and the power to make appointments and removals from office in certain specified cases. The governor's power of appointment, though not extended to some of the more important officers, such as heads of departments, has nevertheless tended to increase within recent years through the creation of numerous administrative boards and commissions, composed of members appointed by the governor, either absolutely or with the consent of the senate. The governor's power of direction, however, even over those officers whom he may appoint is comparatively slight, owing to the limited extent to which he is vested with the power of removal. The governor is not deemed to be vested with such power of removal unless it is specifically granted by the constitution or laws. Even in those cases in which it is granted, it is hedged about by various restrictions. It is generally provided that removal shall not take place until the incumbent of the office shall have had notice of charges against himself and a hearing in which he may have an opportunity of presenting his defense. It is a quite general rule, also, that the legality of the action of the governor may be reviewed by the courts. In a few cases, however, the exercise of the removal power by the governor is made final and conclusive; for example, in New York and Minnesota the governor may remove the district attorney, and there is no appeal to the courts from his decision. In Oregon the governor is given the power to remove any member of the state Industrial Accident Commission for cause, and "such power of removal shall be absolute, and there shall be no right of review in any court whatsoever" (Laws of 1913, Ch. 112).

Heads of Departments.—In nearly all the states there are found a secretary of state, an attorney-general, a state treasurer, and a state auditor or comptroller, whose offices are created by the constitution. They are generally elected by the people on the same ticket as the governor. Their powers and duties are largely prescribed by statute, and in the exercise of them they are not subject to the direction or control of the governor. The governor may issue commands, but the heads of departments need not obey unless compelled to do so by a court of law. The relation, therefore, between the governor and the heads of departments is not an administrative, but a legal relation. This is in direct contrast to the relation which exists between the President and the members of his Cabinet,

and tends very seriously to disintegrate the state administration. In order to remedy this situation, the People's Power League of Oregon has proposed that the governor be given the power to appoint the attorney-general, secretary of state, state treasurer, state printer, superintendent of public instruction, secretary of labor and the state business manager, who shall constitute his cabinet and be subject to his direction. This proposal, however, has not yet been submitted to the people of that state for a vote. In 1913 a constitutional amendment was submitted to the people of Ohio, designed to give to the governor the power both to appoint and to remove the secretary of state, auditor of state, state treasurer and attorney-general, but the proposition failed of ratification. (See also II, *Popular Government and Current Politics.*)

Boards and Commissions. — One of the most striking features of state administration is the vast number of boards and commissions which have been established in the various states for the purpose of supervising the execution of some part of the substantive law of the state. The creation of these bodies began in earnest not long after the close of the Civil War and has continued with slight, if any, abatement down to the present time. During the first decade of the present century the increase in the number of such bodies averaged between 100 and 200 annually. At the present time there are in the state of Connecticut, in addition to the nine single commissioners or heads of departments, more than 40 boards of commissioners, while in Illinois the number of permanent state boards and commissions is upward of 80. These bodies have generally been created by statute, but in some instances they have been provided for in state constitutions, as in the case of the Corporation Commission established by the Louisiana Constitution of 1898.

Some of the more important matters which have been placed under the administrative supervision of state boards and commissions are revenue and taxation, charities and correctional institutions, education, public health, corporations, such as railroads, public utilities, banking and insurance, agriculture and the conservation of natural resources, public works, labor, and the civil service. The increasing complexity of industrial relations has made especially numerous within recent years the boards created for the purpose of dealing with labor matters, such as minimum wage boards, industrial commissions, and state accident commissions in connection with employer's liability and workmen's compensation laws.

These boards, especially those dealing with matters of public safety, have been granted large powers. The general rule is that the action of such administrative agencies is subject to review by the courts, but a tendency is noticeable toward a greater degree of conclusiveness of administrative action. The relation of these boards to the state executive authorities and to each other is slight, and they consequently perform their duties with scarcely any sense of responsibility to other constituted authorities. The result has been that they practically constitute a fourth department of the state government, and bring about a serious disintegration in the administration of the state business. In order to bring about greater unity and coördination in the work of these state boards, a movement has rapidly grown within recent years toward the abolition of useless boards and the consolidation of others into homogeneous groups under central control. This has been especially noticeable in the case of charitable, correctional and educational institutions, which were formerly governed by separate board of trustees, but have now, in numerous instances, been brought under a single board of control. This has brought about increased economy, efficiency, and responsibility. One particular item of economy which has thereby been effected has been through the centralization in the purchase of supplies for state institutions. During 1913 New Hampshire and Vermont both passed laws providing for state purchasing agents. In order still further to centralize the state administration, the People's Power League of Oregon has proposed that the governor shall take over the con-

trol of the organization and management of all state institutions now managed by boards and commissions, and may continue such boards and commissions in an advisory capacity, but he alone shall be responsible to the people for results. (See also II, *Popular Government.*)

Centralization and Home Rule.—Although the state administrative system is still to a considerable extent decentralized, nevertheless tendencies toward centralization have recently bcome more and more prominent. Legislative interference in matters of local government has often been very extensive, but state administrative supervision is tending gradually to displace direct legislative interference. Many matters which, until comparatively recent times, were customarily left to the control of local authorities, have now become subject to the administrative supervision of state agencies. State control over such matters has been brought about either (1) by the direct assumption of a local function by the state, (2) by allowing a local function to remain in the hands of local authorities, but subject to state administrative supervision, or (3) by publicity through investigations of local administration and reports made by state agencies. By one or the other of these ways, state control has been gradually extended over such matters as charities and correction, education, public health, the maintenance of order, weights and measures, finance, roads, public utilities, etc. This movement toward centralization has been largely due to the practical necessities of the case, and the impossibility of any adequate supervision by local authorities. For example, the widespread use of the bicycle, and, later, of the automobile, together with the need of the farmer to move his crops to market, have caused the movement for good roads. But good roads, especially "trunk line" roads, could not be efficiently constructed or maintained as long as they were under the control of townships and counties. Hence the state interposed at first by "state aid," and later by direct construction and maintenance of good roads.

In some states, such as Ohio and Washington, there have been established bureaus of inspection and supervision of public offices, with power to investigate and publish reports of the financial operations of local bodies and officers. In a number of states, various state boards and commissions have been entrusted with the power of installing uniform systems of accounts for local bodies. In Oregon, by a recent act (Laws of 1913, Ch. 286), the insurance commissioner is empowered to audit annually the books and accounts not only of each institution or officer spending state money, but also of the counties of the state, and to formulate and prescribe a uniform system of accounting to be used by all such officers, institutions, and counties. The failure of any state or county officer or employee to use the system of accounting prescribed by the insurance commissioner is punishable as a misdemeanor, and may, in addition, be punished by removal from office.

In these various ways, therefore, the localities are being gradually brought under the administrative control of the state. That this tendency has been productive of much good both to the people of the locality and to the state as a whole is generally admitted, but a feeling is entertained in some quarters that, with respect to cities at least, the tendency has gone too far, and a greater measure of home rule should be accorded to the cities in the management of their local concerns. This feeling has been voiced especially in the connection with the control by the municipalities of their own public utilities, as illustrated by the report embodying this sentiment, made to the National Municipal League at its meeting in Toronto in November, 1913. (See also VII, *Municipal Government.*)

Finance.—Under this head one or two phases of the subject may be briefly touched upon. Within recent years there has been a very considerable increase in the amount of state expenditures. They have increased much more rapidly than population, and the ordinary sources of revenue have not been able to bear the strain, and consequently new sources of revenue have had to be resorted to. Campaigns have been waged upon the issue of economy, but administrations

elected upon this issue have found themselves equally powerless to stem the tide toward lavish expenditures. Governors have sounded notes of warning in legislative ears, but without result. To a large extent, of course, this increase of state expenditures is natural and to be expected on account of the increasing work of carrying on the state government and administration, through the rapid extension in the scope of existing state functions, and the continual assumption of new functions. Statistics show that a larger and larger proportion of the state funds are now being expended upon what may be called the developmental functions of government, such as charities and education, while the increase is not so heavy in the case of the more fundamental functions, such as the maintenance of the public safety. Nevertheless, while this increase of expenditures is to a considerable extent due to a legitimate growth of state business, it is undoubtedly due also in part to graft, extravagance, uneconomical methods, and the multiplication of useless boards and officers.

It has come to be recognized within recent years that economy in the expenditure of state funds can be attained only by a more unified control over such expenditures and by a more systematic correlation of expenditures and revenue. In order to attain these essential objects, various proposals and some positive enactments have been made in recent years. The People's Power League of Oregon has proposed that the governor be given a seat in the legislative assembly and be vested with the exclusive right of introducing all bills necessary for the appropriation of money, subject to the right of the assembly to reduce but not to increase the amount. In 1912 Speaker Cushing of the Massachusetts House of Representatives proposed the creation of a state finance commission, similar to the Boston Finance Commission, with the following functions: (1) supervision of county, city and state indebtedness; and (2) a more thorough control over state expenditures through the establishment of a permanent agency to "investigate the estimated expenditures of the various departments before the legislature convenes and thus be in a position to make recommendations to the legislature and to the governor and council based on a careful examination of the estimates and expenditures of the various departments and institutions." The Massachusetts General Court accordingly passed an act (Laws of 1912, chapter 719) establishing a Commission on Economy and Efficiency with power to inquire into the laws governing the financial transactions of the commonwealth, to scrutinize the estimates of the various departments and institutions and to make recommendations to the governor and council and the general court. During 1913 budgetary legislation was passed in New York, Ohio, North Dakota, Illinois, and Oregon. The New York law created a state Board of Estimate, composed of the governor and other state executive officers and chairmen of legislative committees with the commissioner of economy and efficiency as secretary. This board examines the requests of the various departments and institutions for appropriations and prepares a budget annually for the consideration of the legislature. The Oregon law (Laws of 1913, Ch. 284) provides that all departments, institutions, etc., shall biennially file with the secretary of state statements showing the amounts appropriated for the current and next preceding biennial period, the amounts required during the ensuing biennial period, and estimates of probable revenues of each such department or institution for the ensuing biennial period. The statements are then to be tabulated by the secretary of state and transmitted to the governor and members of the legislature, and upon the basis of such tabulation the governor is in a position to make recommendations to the legislature. By these methods greater economy and efficiency is secured in the management of the state finances.

The Enforcement of State Law.—The machinery utilized for the enforcement of state law may be classified as extraordinary, including the state militia and the *posse comitatus*, or power of the county, and the ordinary, including the courts and prosecuting officers, the attorney-general, the local prosecuting attorneys,

sheriffs, constables and police. The militia may be called out by the governor to quell riots or wholesale violations of law, but cannot be utilized in connection with isolated or spasmodic infractions of the law. The governor is charged by the constitution with seeing that the laws are faithfully executed, but, as has been said, this constitutional provision gives him no specific powers, and, other than by calling out the militia, he has little control over the enforcement of state law. The prevalent idea as to the proper method of state law enforcement has been, and still to a considerable extent is, embodied in the practice of local autonomy. The states depend for the enforcement of their law upon county, city or town officers, such as local prosecuting attorneys, sheriffs, constables and police. These officers are elected or appointed by the localities in which they perform their duties and are not subject in general to any administrative control by the central state authorities. The attorney-general may advise the local prosecuting attorneys in the performance of their duties, but cannot remove them from office if they fail to heed the advice. The result has been that, though the making of law is at least nominally centralized in the legislature, its enforcement is greatly decentralized. The result has been that the will of the state as embodied in law has frequently been set at naught by local officials, who thus really become policy-determining officers within their narrow spheres. A realization of the disadvantages of this situation has led to the creation of a certain amount of centralized control over the enforcement of state law. The governor in some states has been given the power to remove from office local prosecuting attorneys, sheriffs, and even mayors who have been derelict in the performance of their duties in connection with the enforcement of state law. Municipal police forces have in some instances been brought under state control. For example, the police systems of Boston and two other Massachusetts towns have been placed under boards of police commissioners, appointed by the governor. Not content with mere supervision over the local agencies for the enforcement of law, some states, such as Pennsylvania, Texas and Arizona, have created state constabularies for the direct enforcement of state law through state instrumentalities. Although this development has taken place at the expense of local autonomy, it has nevertheless undoubtedly proved to be a more efficient method of law enforcement.

References and Bibliography.—For detailed references to state administrative activities the index to this volume should be consulted, under different topics and names of states. Extensive treatment of the more important topics may be sought in the following departments: II, *Popular Government and Current Politics;* V, *Civil Service;* VII, *Municipal Government;* X, *Public Resources and Public Works;* XI, *Public Services;* XIII, *The Conduct of Business;* XIV, *Public Finance, Banking, and Insurance;* XVI, *Social and Economic Problems;* XVII, *Labor and Labor Legislation;* XVIII, *Prosecution, Correction, and Charity;* XIX, *Agriculture;* and XXII, *Trade, Transportation, and Communication.* The following works may be consulted for fuller discussion:

FAIRLIE, J. A.—"The State Goveror." (*Michigan Law Review,* March and April, 1912.)
FINLEY, J. H. and SANDERSON, J. F.—*The American Executive and Executive Methods.* (Century Co., 1908.)
GOODNOW, F. J.—*The Principles of the Administrative Law of the U. S.* (Putnam, 1905.)
REINSCH, P. S.—*Readings in American State Government.* (Ginn & Co., 1911.)
WHITE, F. H.—"The Growth and Future of State Boards and Commissions." (*Political Science Quarterly,* 1903.)

AMENDMENTS TO STATE CONSTITUTIONS

On the following pages are given the short titles of the constitutional amendments submitted to the people of the various states during 1913 or passed by the state legislatures for submission in a subsequent year. Many of the important amendments are discussed in detail in other departments of the YEAR BOOK; full references will be found in the index under the names of the different states.

Arkansas.—To be submitted in 1914:

Amending Art. V, Sec. 16, providing for the compensation of members of the General Assembly at the rate of six dollars per day for regular sessions and mileage of ten cents per mile each way.

Amending Art. V, Sec. 15, providing for an annual salary of members of the General Assembly of $750 for a term of two years and mileage of five cents per mile each way.

Amending Art. VI, Sec. 1, defining the personnel of the executive department of the state, and the terms of office of the executive officers, and authorizing the establishment of the office of commissioner of state lands.

Amending Art. VI, Sec. 2, relating to the executive power and the mode of election of the Governor and Lieutenant-Governor.

Amending Art. VI, Sec. 3, relating to the mode of election of the Governor and the Lieutenant-Governor.

Amending Art. VI, Sec. 4, imposing on the Lieutenant-Governor the duties of office in case of the impeachment, removal from office, disability or death of the Governor.

Amending Art. VI, Sec. 5, relating to the qualifications and duties of the Lieutenant-Governor and his succession to the Governorship.

Amending Art. VI, Sec. 6, fixing the salary of the Lieutenant-Governor at $2,000.

Amending Art. VI, Sec. 7, repealing all laws and parts of laws in conflict in the foregoing amendments.

California.—To be submitted in 1914:

Amending Art. IV, Sec. 23a, relating to the limitation of expenses for officers and employees of the legislature.

Amending Art. IV, Sec. 31, relating to the financing of irrigation districts.

Amending Art. V, Sec. 20, relating to the election of U. S. Senators.

Amending Art. VI, Sec. 4½, relating to appeals and the setting aside of judgments.

Amending Art. VI, by adding section 4a, providing for the holding of extra sessions of the district courts of appeal.

Amending Art. XI, Sec. 6, relating to the creation of municipal corporations by general law.

Amending Art. XI, Sec. 7½, relating to charters of counties and amendments thereof and to the framing of charters by boards of freeholders.

Amending Art. XI, Sec. 8, relating to municipal charters framed by boards of freeholders and their amendment.

Amending Art. XI, Sec. 13, relating to the supervision, regulation and conduct of the affairs of irrigation, reclamation or drainage districts.

Amending Art. XI, Sec. 13½, relating to the place of payment of bonds, and the interest thereon, and the money in which bonds and interest are payable.

Amending Art. XI, Sec. 18, relating to the restriction of the power of counties, cities and other subdivisions of the state to incur indebtedness.

Amending Art. XI, Sec. 19, relating to the operation of public utilities by municipal corporations.

Amending Art. XI, by adding section 20, relating to the taking of property for public use and the payment therefor.

Amending Art. XII, Sec. 23, relating to the supervision and regulation of public utilities.

Amending Art. XII by adding section 23a, relating to the power of the Railroad Commission to fix the just compensation to be paid for the taking of the property of public utilities in eminent-domain proceedings.

Amending Art. XIII, Sec. 1, relating to revenue and taxation.

Amending Art. XIII, Sec. 1, relating to the exemption of certain property of educational institutions of collegiate grade from taxation.

Amending Art. XIII, Sec. 4, relating to the exemption of vessels engaged in commerce from taxation.

Amending Art. XIII, Sec. 8½, relating to taxation by municipalities, and the classes of property exempt from taxation.

Amending Art. XVIII, Sec. 2, relating to the manner of calling a convention to revise the constitution.

Amending Art. XX, Sec. 13, relating to the preferential system of voting.

Amending Art. XX by adding Sec. 17½, relating to the conditions of labor and the welfare of employees.

Colorado.—To be submitted in 1914:

Amending Art. X, Sec. 15, relating to the personnel and duties of the Board of Equalization.

Amending Art. XI, Sec. 8, relating to the indebtedness of municipalities.

Amending Art. XIX, Sec. 2, relating to the publication of amendments to the Constitution.

Connecticut.—Submitted Nov. 4:

Amending the constitution to provide for an increase of the salary of state Representatives and Senators. Defeated, 17,812 for, 25,393 against.

Delaware.—Adopted by the legislatures of 1911 and 1913 and thereby added to the constitution:

Amending Art. II, Sec. 10, relating to the publishing of a journal by each house containing names of members voting on bills and mode of final vote.

Amending Art. II, Sec. 19, relating to legislation on the laying out, opening, alteration or maintenance of roads or highways.

Amending Art. IV, Secs. 5 and 6, relating to a quorum in certain courts and apportioning business among them.

Florida.—To be submitted in 1914:

Amending Art. IV, Sec. 16, relating to the appointment by the Governor of commissioned officers of the state militia.

Amending Art. V, Sec. 1, relating to the judiciary, allowing the legislature to fix the pay of Supreme Court judges.

Amending Art. VIII, Sec. 6, relating to the election, term of office and duties of county officers.

Idaho.—To be submitted in 1914:

Amending Art. IV, Sec. 1, to extend the term of office of state officers from two to four years.

Amending Art. V, Sec. 6, providing for five justices of the Supreme Court in place of three.

Amending Art. IX, Sec. 7, declaring that the superintendent of public instruction shall not be a member of the state Board of Land Commissioners.

Indiana.—An act approved on March 15, 1913, provides for the submission to the electors at the general election of 1914 of the question of a constitutional convention in November, 1915.

Iowa.—Passed by the legislature of 1913, to be submitted to the next legislature:

Amending Art. II, Sec. 1, to extend the suffrage to women.

Amending Art. II, Sec. 7, relating to the time of holding general elections.

Amending Art. III by adding Sec. 39, authorizing the General Assembly to provide for the exclusive taxation of certain classes of property for state revenue purposes.

Amending Art. III, Sec. 1, providing for the initiative and referendum with reference to the enactment of laws and amendments to the constitution.

Kansas.—To be submitted in 1914:

Amending Art. II, Secs. 1 and 2, empowering the legislature to establish a system for raising state and local revenue and to classify the subjects of taxation.

Amending Art. IV, Secs. 3, 4, and 5, providing for the recall of public officers.

Kentucky.—Submitted Nov. 4:

Amending the constitution to permit the employment of convict labor upon public roads and bridges. Adopted, 52,358 to 28,280.

Amending Sec. 171, giving the legislature the power to classify property for purposes of taxation. Adopted, 49,814 to 24,244.

Louisiana.—A constitutional convention was held in November to provide for the refunding of the bonded debt of the state, amounting to $11,108,300, due Jan. 1, 1914. The state offered an issue of four per cent. 50-year bonds but found it impossible to sell them. It was necessary, therefore, to secure authorization for an issue of short-term obligations by an amendment to the constitution. The legislature, assembled for this purpose in special session on Sept. 8, passed an act providing for the submission to the people of a proposal for the assembly of a constitutional convention of 80 members empowered to frame and adopt without submission to the people amendments to the constitution under certain specified restrictions as to subject. The proposal was approved and the delegates elected at a special election on Oct. 28. The convention assembled on Nov. 10 and adopted an amendment authorizing the Board of Liquidation at its discretion to issue one to 50-year serial gold 4½ per cent. bonds on public advertisement, or temporary five per cent. bonds running over five years to be sold with or without advertisement, without limitation as to price in either case.

Maine.—Submitted Nov. 4:

Amending Art. IX, Sec. 8, regarding the apportionment of taxes upon real and personal property and empowering the legislature to levy a tax upon intangible personal property. Adopted, 10,060 to 8,157.

Amending Art. X, Sec. 2, relating to the method of proposal of and voting on amendments to the constitution. Adopted, 16,746 to 6,741.

Massachusetts.—Submitted Nov. 4:

Amending the constitution to make women eligible to appointment as notaries public. Defeated, 154,691 for, 181,343 against.

Amending the constitution to permit the legislature to refer measures to the people. Adopted, 206,689 to 77,767.

Maryland.—Submitted Nov. 4:

Amending Art. I, Sec. 3, permitting the General Assembly to excuse the vote seller and to place a penalty upon the vote buyer. Adopted, 43,024 to 19,616.

Amending Art. III, Sec. 27, relating to the introduction and course of bills. Adopted, 42,732 to 19,607.

Amending Art. III by adding Sec. 40a, prohibiting the General Assembly from passing any law authorizing private property to be taken for public use without compensation. Adopted, 49,318 to 20,861.

Amending Art. IV, Sec. 21, relating to the election or appointment of a chief judge and associate judge of the circuit courts. Adopted, 41,031 to 20,507.

Amending Art. V, Sec. 3, relating to the duties of the Attorney-General. Adopted, 36,986 to 17,636.

Amending Art. V, Sec. 9, relating to fees, commissions and salary of the state's attorney. Adopted, 39,847 to 20,744.

Michigan.—Submitted at a special election on April 7:

Amending Art. III, Sec. 1, to extend the suffrage to women. Defeated, 168,738 for, 264,882 against.

Amending Art. III, Sec. 8, providing for the recall of elective officers upon petition of 25 per cent. of the electors. Adopted, 237,743 to 145,412.

Amending Art. V, Secs. 1 and 19, providing for the initiative on legislative measures. Adopted, 219,057 to 152,388.

Amending Art. XVII, Sec. 2, providing for the initiative on constitutional amendments. Adopted, 204,796 to 116,392.

Amending Art. X, Sec. 14, to provide for a fireman's pension fund. Defeated, 179,948 for, 206,204 against.

To be submitted in 1914:

Amending Art. III, Sec. 1, providing that students, members of the legislature and commercial travellers, shall not be deprived of voting by reason of absence from home.

Amending Art. VIII, Sec. 15a, granting to counties authority to issue bonds for the construction of drains and development of agricultural lands.

Amending Art. X, Sec. 10, permitting the issuance of bonds for the construction and improvement of public wagon roads.

Minnesota.—To be submitted in 1914:

Amending Art. IV, Sec. 1, to reserve to the people the power of initiative and referendum on constitutional amendments.

Amending Art. IV, Sec. 2, relating to the apportionment of state senators and Representatives and fixing the number of such Representatives.

Amending Art. VI, Sec. 2, relating to the Supreme Court, increasing the number of associate justices from four to six and providing that no statute shall be held unconstitutional with less than five judges concurring.

Amending Art. VI, Sec. 7, changing the length of the term of the judge of the Probate Court.

Amending Art. VII by adding Sec. 10, providing for the recall of public officials.

Amending Art. VIII, Sec. 2, authorizing the setting apart of a fund of $250,000 to be used in constructing roads, ditches and fire breaks for unsold school and swamp lands.

Amending Art. VIII, Sec. 6, relating to the investment of school funds and authorizing the investment and loaning of school funds on improved farm lands within the state.

Amending Art. VIII, Sec. 8, to authorize the setting apart of certain of the state's lands as state forests.

Amending Art. IX by repealing Sec. 11, providing for the publication of an annual report of the state treasurer.

Amending Art. IX by adding Sec. 17a, relating to the payment of bounties by the state to encourage the planting, cultivation and protection of forest trees.

Amending Art. IX, Sec. 18, authorizing the enactment of laws taxing dogs and providing for the payment from funds thus derived of damages sustained by owners by reason of injuries caused by dogs.

Missouri.—To be submitted in 1914:

Amending Art. IV, Sec. 16, fixing the salary of members of the legislature at $1,000 per annum.

Amending Art. IV, Sec. 47, to permit the legislature to pension the deserving blind.

Amending Art. IV, Sec. 57, to provide that initiative and referendum petitions shall be filed with the county clerk instead of with the Secretary of State, defining the powers of initiative and referendum, and limiting the resubmission of rejected initiative or referendum measures.

Amending Art. IX, Sec. 16, relating to the framing of charters of cities having over 100,000 inhabitants and the publication of charter amendments.

Amending Art. X, Sec. 12, increasing the debt limit of cities of above 100,000 population.

Amending Art. X, Sec. 12, to allow Kansas City to incur indebtedness for acquisition of water works, gas works, street railways and other public utilities.

Amending Art. X by adding Sec. 23, providing for a special annual levy, by a majority vote of qualified voters, not to exceed 65 cents on $100 of assessed valuation for road purposes.

Amending Art. X by adding Sec. 27, providing for state tax of 10 cents on each $100 of assessed valuation for a road-improvement fund.

New Mexico.—To be submitted in 1914:

Amending Art. V, Sec. 1, defining the personnel of the executive department, their terms of office and duties.

Amending Art. VIII, Secs. 1, 2, 3, 4, 5, 6, and 7, relating to taxation and revenue.

New York.—Submitted Nov. 4:

Amending Art. I, Sec. 7, relating to the method of taking private property for public use. Adopted, 424,928 to 270,467.

Amending Art. I by adding Sec. 19, providing that the legislature may enact laws to protect the lives, safety or health of employees and also permitting the passage of workmen's compensation laws. Adopted, 510,914 to 194,497.

Amending Art. VI, Sec. 14, by adding two judges in Kings County and by providing that the number of Judges in any county may be increased by the legislature to one for every 200,000 population of the county. Adopted, 389,971 to 255,539.

Amending Art. VII, Sec. 7, permitting the setting aside of three per cent. of the wild forest land of the state for the construction and maintenance of reservoirs to regulate flow of streams. Adopted, 486,264 to 187,290.

Passed by the legislature of 1913, to be submitted to the legislature of 1915:

Amending Art. II, Sec. 1, to extend the suffrage to women.

Amending Art. VII by adding Sec. 7a, permitting the removal of mature, dead or fallen timber from the forest preserve, and the leasing of camp sites and construction of roads and trails therefor.

An act approved on Dec. 17 provides for the submission to the people

at a special election of April 14, 1914, of a proposal for the calling of a constitutional convention in 1915.

North Carolina.—To be submitted in 1914:

Amending Art. I, Sec. 6, by substituting the words "war between the states," for "insurrection or rebellion against the United States."

Amending Art. II, Sec. 28, relating to the increase of compensation and the reduction of mileage allowance to members of the General Assembly.

Amending Art. II, by adding Sec. 29, restricting local, private and special legislation.

Amending Art. III, Sec. 1, relating to the beginning of the term of officers of the executive department.

Amending Art. IV, by the elimination of obsolete sections 20, 26 and 33.

Amending Art. V, and Art. VII, Sec. 9, by substituting new Art. V, to revise and reform the system of revenue and taxation.

Amending Art. VIII, Sec. 1, prohibiting the creation of corporations by special act.

Amending Art. VIII, Sec. 4, imposing on the legislature the duty of providing general laws for organization of cities, towns and incorporated villages.

Amending Art. IX, Sec. 3, to require a public school term of six months.

North Dakota.—To be submitted in 1914:

Amending the constitution to provide for the initiative and referendum on legislative measures.

Amending the constitution to provide for the initiative and referendum on constitutional amendments.

Amending the constitution to change the name of the state Blind Asylum.

Amending the constitution to permit state aid for highways.

Amending the constitution to empower the legislature to provide for the erection and operation of terminal grain elevators within the state.

Oklahoma.—Submitted at special election on Aug. 5:

Amending Art. V, Sec. 5a, to give all counties in the state the right of option on the question of abolishing township governments. Adopted, 3,182 majority.

Amending Art. VI, Sec. 31, reducing the membership of the Board of Agriculture. Adopted, 19,915 majority.

Amending Art. VI, by adding Sec. 32b, defining certain powers and duties of the commissioners of the land office. Adopted, 11,985 majority.

Amending Art. IX, Sec. 9, authorizing any foreign or domestic railroad company on the consent of the Corporation Commission to sell or lease its property or franchises or acquire property and franchises of a like company. Adopted, 51,786 majority.

Amending Art. X, Sec. 12a, providing that all taxes paid by certain public service corporations for maintenance of schools be distributed as other common school funds. Adopted, 15,878 majority.

Ohio.—Submitted Nov. 4:

Amending Art. III, Secs. 1, 2, and 18, relating to the short ballot for state officers. Defeated, 238,765 for, 461,066 against.

Amending Art. X, Secs. 1 and 2, relating to the short ballot for county and township officers. Defeated, 217,542 for, 449,023 against.

Amending Art. XI, Secs. 1, 2, 3, 4, and 5, relating to a small legislature. Defeated, 240,066 for, 417,528 against.

Amending Art. XII, Sec. 12, exempting from taxation state of Ohio, city, village, hamlet, county, township, road-district and school bonds. Defeated, 311,747 for, 340,246 against.

Amending Art. XV, Sec. 4, relating to the eligibility of women to appointment as members of boards of or to positions in departments and institutions caring for women and children. Adopted, 434,498 to 254,866.

At the same election a referred measure (H. Bill No. 3) prohibiting the shipment, conveyance or receiving of intoxicating liquors into territory in which intoxicating liquors are prohibited was defeated by 360,534 for, to 455,009 against.

Pennsylvania.—Submitted Nov. 4:

Amending Art. III, Sec. 7, prohibiting the General Assembly from passing any law regulating labor, trade, mining or manufacturing; but permitting the legislature to regulate wages or salaries, hours of work, and welfare of employees of the state. Defeated, 203,633 for, 219,351 against.

Amending Art. VIII, Sec. 3, relating to the time of election of judges and their terms of office. Adopted, 217,345 to 195,179.

Amending Art. IX, Sec. 1, relating to uniformity of taxation and the exemption from taxation of public property. Defeated, 203,976 for, 204,095 against.

Amending Art. IX, Sec. 4, authorizing the state to issue bonds to the amount of $50,000,000 for the improvement of highways. Defeated, 259,042 for, 300,435 against

Amending Art. IX, Sec. 15, relating to municipal obligations for debt incurred for the construction or acquisition of waterworks, subways, underground railways and appurtenances. Adopted, 208,063 to 201,605.

South Carolina.—To be submitted in 1914:

Amending Art. X by adding Sec. 16, to empower the cities of Sumter and Darlington and the towns of Belton and Walhalla to assess abutting property for permanent improvements.

The amendments to Art. X, Secs. 14a and 15, approved by the people in 1912 (*A. Y. B.*, 1912, p. 189) were ratified by the legislature of 1913.

South Dakota.—To be submitted in 1914:

Amending Art. III, Sec. 1, providing for the initiative and referendum.

Amending Art. III, Sec. 6, relating to the term of office and compensation of members of the legislature.

Amending Art. IV, Sec. 7, relating to a quorum of judges of the Supreme Court.

Amending Art. VII, Sec. 1, extending the suffrage to women.

Amending Art. VIII, Sec. 5, relating to the purchase and sale of school and endowment lands.

Amending Art. IX, Sec. 5, relating to the election of county officers.

Amending Art. XIV, Secs. 2 and 3, providing a state board of control for state institutions.

Amending Art. XXI by adding section 7, authorizing the legislature to provide for the irrigation of agricultural lands.

A resolution proposing and recommending a constitutional convention was passed by the legislature for submission at the next general election Nov. 1914.

Texas.—Submitted at a special election on July 19:

Amending Art. III, Secs. 49 and 52, authorizing the issue of bonds for public improvements and the levy of a tax to pay interest and sinking fund thereon. Defeated, 19,745 for, 120,734 against.

Amending Art. V, Sec. 7, relating to the creation and formation of judicial districts, the terms, compensation and qualification of the judges of the district courts, and the times of holding court. Defeated, 25,329 for, 112,548 against.

Amending Art. XVI, by adding new Sec. 58, relating to the tenure of office and compensation of public officials. Defeated, 29,367 for, 108,254 against.

To be submitted in 1914:

Amending Art. III, Sec. 1, providing for the initiative on legislative measures.

Amending Art. III, Sec. 24, granting members of the legislature a salary of $1,200 per annum, and mileage not exceeding five cents per mile, and increasing the length of a regular session of the legislature.

Amending Art. XI by adding Sec. 7a, authorizing counties bordering on the Gulf of Mexico to build sea walls and designate sea-wall reclamation districts for the protection of life and property.

Vermont.—Submitted March 4:

Amending Art. II, relating to the approving, signing or vetoing of bills. Adopted, 17,047 to 8,078.

Amending Art. XXIV, Secs. 1, 2, 4, 5, and 6, relating to the biennial meeting of the General Assembly; the biennial election of state officers, and the term of office of Senators and Representatives, assistant judges and sheriffs. Adopted, 16,849 to 7,868.

Amending Art. XXX, relating to the granting of charters of incorporation. Adopted, 14,589 to 7,542.

Amending Art. XXXI, changing the words "judge" and "judges" to "justice" and "justices." Adopted, 14,803 to 7,263.

Amending Art. XXXII, permitting the General Assembly to pass laws compelling compensation for injuries received by employees. Adopted, 15,935 to 7,860.

Amending Art. XXXIII, relating to the rearrangement and renumbering of Chapter 2 of the Constitution. Adopted, 14,985 to 6,936.

Amending Ch. 2, Sec. 14, relating to the printing of votes and proceedings of the General Assembly. Adopted, 15,258 to 7,447.

Amending Ch. 2, Sec. 20, prohibiting the declaration by the legislature of any person to be guilty of treason or felony. Adopted, 13,953 to 9,244.

Washington.—To be submitted in 1914:

Amending Art. II, Sec. 33, prohibiting the ownership of land by aliens, other than those who in good faith have declared their intention to become citizens of the United States.

Wisconsin.—To be submitted in 1914:

Amending Art. IV, Sec. 1, providing for the initiative on legislative measures.

Amending Art. IV, Sec. 21, fixing the salary of members of the legislature at $600 per annum and a mileage rate of two cents.

Amending Art. VII, Secs. 6 and 7, empowering the legislature to alter the limits, decrease or increase the number of circuits and providing for the election by qualified electors of one or more circuit judges.

Amending Art. VIII by adding Sec. 11, permitting the state to grant annuities and insurance upon such risks and in such manner as may be prescribed by law.

Amending Art. VIII by adding Sec. 13, permitting the state to grant insurance upon such risks and in such manner as may be prescribed by law.

Amending Art. XI by adding Sec. 3a, empowering cities and villages to amend their charters and to frame and adopt new charters and to enact laws and ordinances relating to municipal affairs.

Amending Art. XI by adding Sec. 3b, providing that when private property is taken for public use by municipal corporations, additional adjoining or neighboring property may be taken under conditions to be prescribed by the legislature.

Amending Art. XII, Sec. 1, relating to the manner of amending the constitution, providing that amendments may be proposed in either house of the legislature and if agreed to by three-fifths of the members elected to each of the two houses shall be submitted to the electors at the next general election.

Amending Art. XII, by adding Sec. 3, providing for the initiative on constitutional amendments.

Amending Art. XIII by adding Sec. 12, providing for the recall of public officers.

VII. MUNICIPAL GOVERNMENT

CLINTON ROGERS WOODRUFF

MUNICIPAL HOME RULE

New York.—The Cullen-Levy bill became a law with the approval of the Governor on April 10. It provides that every city in the state shall have power to regulate, manage and control its property and local affairs and is granted all the rights, privileges and jurisdiction necessary and proper for carrying such power into execution. No enumeration of powers in this or any other law, it was declared, shall operate to restrict the meaning of this general grant of power, or to exclude other powers comprehended within this general grant. Subject to the constitution of the state, a series of specific grants of power were enumerated. The powers granted were declared to be in addition to and not in substitution for all the powers, rights, privileges and functions existing in any city pursuant to any other provision of law.

There has been a great difference of opinion as to the possibilities under this law. Since its enactment an ordinance has been passed in New York City requiring city employees to live within the state. It is claimed that the bill made this legal. A committee was appointed in the Spring to make a general investigation of the possibility of providing proper pensions for city employees, as it is believed that the city now has sufficient power under this law to establish such a system. It seems to be a general impression that much so-called social legislation is possible under this new law, such as a provision for recreations, amusements, etc.

An optional city government bill was introduced in the New York legislature which gave to the cities of the second and third classes in that state power to choose one of three forms of municipal government: the limited council; the limited council with appointive city manager; and government by means of separate executive and legislative departments. The "limited council" is only another name for commission government. The third type is that which is generally known as the "federal" type. The bill did not pass, but it is expected that it will come up again in the 1914 session.

Ohio.—As a result of the constitutional amendments adopted in November, 1912 (*A. Y. B.*, 1912, p. 191), the cities of Ohio have been busily engaged in adopting new charters, Cleveland leading the way with one which was formally approved on Sept. 3. It provided for non-partisan primaries and elections; a mayor and one councilman from each of the 26 wards; the initiative, referendum and recall; the merit system; and six departments (law, public service, public welfare, finance, public safety, and public utilities), each in charge of a director appointed by the mayor. The charter leaves to the city all the powers of local self-government granted by the home-rule amendment of the constitution. There is no attempt to limit those powers.

The constitutionality of the charter was upheld by a divided court. An earlier opinion of the Supreme Court (State of Ohio *ex rel.* Toledo *v.* John J. Lynch) held that no city could do more under the constitutional amendments than heretofore, unless it first adopted a charter under them or secured authority from the assembly. An optional charter bill giving cities the choice of three forms of charter

(commission government, city manager and federal) was passed by the legislature.

Michigan.—A circuit court judge has upheld the constitutionality of the Michigan home-rule law in the first real test to which the law has been subjected in the courts. An injunction was sought on three special grounds: that the home-rule bill was unconstitutional because it delegates legislative power to charter commissioners; because the act provided for the incorporation of cities and also for the revision and amendment of city charters and is broader than the title; and that the Saginaw charter commissioner's work was void because it had not been completed in 90 days. The court held against the injunction petitioner on all these points.

Wisconsin.—The legislature of 1913 acted favorably on a comprehensive constitutional amendment that paves the way for home rule in all the cities of the state. The electors will vote on this question at the election in November, 1914. It is expected that the amendment will be approved at the polls by a substantial majority and that the legislature elected at that time will probably pass the necessary enabling act without delay.

Missouri.—Bills taking the appointment of the members of the St. Louis excise and police board departments from the governor and placing it in the hands of the mayor of St. Louis, leaving the removal power with either the governor or the mayor, at pleasure, and with the city council "for cause," were passed by the legislature of 1913. If the governor removes all the members of a board, however, he is vested with power to fill the vacancies. Viewing the bills as passed without reference to the circumstances surrounding their passage, it is quite generally believed that they give a degree of home rule in these departments of the St. Louis government without impairing the right and power of the state to step in and compel the enforcement of the laws of the state.

Kansas.—A discussion of the needs of a home-rule constitutional amendment was a feature of the meeting of the city attorneys of the state, in connection with the convention of the League of Kansas Municipalities at Kansas City, Kansas. The league, which is composed of 85 cities of the state, is already of record as being strongly in favor of the municipal home-rule policy.

Texas.—A bill carrying into effect the constitutional amendment adopted in November, 1912 (*A. Y. B.*, 1912, p. 193), was passed at the 1913 session.

Colorado.—The home-rule provision of the constitution (Article 20) was amended in 1912 through the initiative and referendum in such a way as to extend its home-rule features. It will be difficult to determine the scope of this amendment until there have been some court decisions on the article, which virtually provides that the provisions of a home-rule charter shall supersede all state laws in conflict therewith. The Supreme Court has indicated in a previous decision that the home-rule amendment does not deprive the state of its police control in home-rule cities. That suggestion is in line with prevailing opinion and will probably guide the court when this new provision is tested.

Washington.—The people of Seattle have been advised by the Supreme Court of the state (Dolan *v.* Puget Sound Traction, Light & Power Co.) that their legislative power under the initiative and referendum is not coextensive with the power of the city council. The court held that "the power to grant franchises is a sovereign power"; while it might be delegated by the state to a city, it is not within the power of the city unless expressly so delegated. In this case a franchise was granted violating the terms of the city charter reserving to the council or the people the right to acquire "all the property of the grantee within the limits of the public streets" without including any valuation for the franchise itself, and that "every ordinance making any such grant shall contain a reservation of these rights of the city council and the people." The ordinance in question did not reserve these rights. The court found the ordinance valid and the charter provision void, on the ground that the legislature had vested in the city the power to grant franchises, that granting franchises is a subject of legislative authority, and

that "the legislative authority of the city means the mayor and city council." The court fortified its position by the argument that a general law enacted by the legislature is superior to and supersedes all "freeholder charter" provisions inconsistent with it.

COMMISSION GOVERNMENT

Adoption and Distribution.—There was no diminution of interest in commission government during 1913. Up to Dec. 1, 1913, there were 128 cities added to the list, as compared with 64 added in 1912, 86 in 1911, 66 in 1910, and 23 in 1909. The accompanying table includes the cities adopting commission government during the first eleven months of 1913 and those added to the list in 1912 not reported in the last issue of the YEAR BOOK.

The total number of cities now being governed under the commission form is 371 (Dec. 1, 1913), distributed among the different groups of states as follows:

Northwestern	80
Southwestern	64
North Central	54
Pacific and Rocky Mountains	48
Middle	48
South Central	42
Southern	27
New England	8

The total population of these cities is about 7,500,000. The annual increase in population of cities under commission government has been approximately as follows:

1901	36,691
1905	78,800
1907	265,224
1908	162,940
1909	485,724
1910	833,840
1911	2,125,069
1912	1,178,435
1913	2,333,277

The classification of commission-governed cities by population is as follows:

Population	
Over 200,000	5
100,000 to 200,000	8
50,000 to 100,000	24
25,000 to 50,000	43
10,000 to 25,000	73
Less than 10,000	218

State Legislation.—Twenty-eight Pennsylvania cities went on a commission-government basis on Dec. 1, 1913, as the result of the passage of the Clark bill by the Pennsylvania legislature. In one-half of the cities of the third class, the bill as finally amended provides that the mayor shall receive $500 per annum and each councilman $250. In the 12 larger cities the salaries of the council are from $2,000 to $2,500 each. The salaries of succeeding councils may be fixed by ordinance. It is therefore possible under the provisions of the bill affecting salaries to adjust them so as to admit of the adoption of the business-manager plan. If sufficient interest is aroused in the boroughs, which number 624 in Pennsylvania and which range in population from 500 to 10,000, an effort will be made to extend the commission form to them.

In Missouri two laws were enacted at the 1913 session, bringing the second- and third-class cities of the state under the system, but the law affecting the latter has been declared unconstitutional by one of the lower courts. New Mexico adopted a law (March 15, 1913) providing an optional form of commission government for cities, towns and villages.

City-Manager Plan.—With its adoption in Dayton, O., the increasing interest in the city manager plan of municipal government is now elevated to the status of an important movement. The real pioneer was Sumter, S. C., which has had the plan in effect since Jan. 1 (*A. Y. B.*, 1912, p. 193). Sumter in turn got it from Lockport, N. Y., whose Board of Trade presented the plan fruitlessly to the state legislature two years ago. Staunton, Va., has had a *quasi* city-manager plan for several years. Dayton, being the first real city to adopt the plan, seems destined to assume the position which Galveston and Des Moines have occupied in relation to the commission plan.

The basic theories involved in the position of an appointive city manager, holding office at the pleasure of an elective commission, have been dealt with at length in an article en-

CITIES ADOPTING COMMISSION GOVERNMENT IN 1912–13

Alexandria, La.	11,213
Allentown, Pa.	51,913
Altoona, Pa.	52,127
Ashland, Wis.	11,594
Baton Rouge, La.	14,897
Battle Creek, Mich.	25,267
Beacon, N. Y.	10,629
Beaver Falls, Pa.	12,191
Belle Fourche, S. D.	1,352
Bishop, Tex.	.....
Bordentown, N. J.	4,250
Bradford, Pa.	14,454
Bristol, Tenn.	7,148
Cairo, Ill.	14,548
Carbondale, Pa.	17,040
Carbon Hill, Ala.	1,627
Cartersville, Ga.	4,067
Charleston, Miss.	1,834
Chester, Pa.	38,537
Cheyenne, Wyo.	11,320
Colorado City, Colo.	29,178
Corry, Pa.	5,991
Covington, Ky.	53,270
Dayton, O.	116,577
Denver, Colo.	213,381
Devil's Lake, N. D.	5,157
Donaldsonville, La.	4,090
Duluth, Minn.	78,466
Easton, Pa.	28,532
Elba, Ala.	1,079
Erie, Pa.	86,525
Evelesh, Minn.	7,036
Fairmont, W. Va.	9,711
Fargo, N. D.	14,331
Florence, S. C.	7,057
Fort Collins, Colo.	8,210
Fort Smith, Ark.	23,875
Franklin, Tex.	.....
Franklin, Pa.	9,767
Frankston, Tex.	.....
Fredonia, Kan.	3,040
Garden City, Kan.	3,171
Garnett, Kan.	2,334
Genesee, Ill.	3,199
Grafton, W. Va.	7,563
Great Bend, Kan.	4,622
Haddonfield, N. J.	4,142
Hammond, La.	2,942
Harlinger, Tex.	.....
Harrisburg, Ill.	5,309
Harrisburg, Pa.	64,186
Hazelton, Pa.	25,452
Hickory, N. C.	3,716
Holton, Kan.	2,842
Jackson, O.	5,468
Jackson, Tenn.	15,779
Jennings, La.	3,925
Jersey City, N. J.	287,779
Johnstown, Pa.	55,482
Joplin, Mo.	32,073
Kingman, Kan.	2,570
Ladysmith, Wis.	2,352
La Grande, Ore.	4,843
Lake Erie, La.	11,449
Lakeland, Fla.	3,719
Lakewood, O.	15,181
Largo, Fla.	281
Las Vegas, N. M.	3,719
Lawrence, Kan.	2,570
Lebanon, Pa.	19,240
Lyford, Tex.	.....
McKeesport, Pa.	42,604
Marseilles, Ill.	3,291
Mason City, Ia.	11,230
Marshall, Tex.	11,452
Meadville, Pa.	12,780
Middleton, O.	16,152
Millville, N. J.	12,451
Morgantown, N. C.	2,712
Morris, Minn.	1,685
Murphysboro, Ill.	7,485
Nashville, Tenn.	110,364
Natchitoches, La.	2,532
New Castle, Pa.	36,280
Nixon, Tex.	.....
Nutley, N. J.	6,009
Oil City, Pa.	15,657
Orangeburg, S. C.	5,906
Orlando, Fla.	3,894
Ottawa, Kan.	7,650
Ottumwa, Ia.	22,012
Pasadena, Cal.	30,291
Pawhuska, Okla.	2,474
Pensacola, Fla.	22,892
Phœnix, Ariz.	11,134
Pittston, Pa.	16,267
Polson, Tex.	.....
Port Byron, Ill.	652
Portland, Ore.	207,714
Raleigh, N. C.	19,218
Reading, Pa.	96,071
River Forest, Ill.	2,456
Rolstown, Tex.	.....
Sabetha, Kan.	1,768
St. Petersburg, Fla.	4,127
San Benito, Tex.	.....
San Bernardino, Cal.	12,779
San Mateo, Cal.	4,384
Sea Isle City, N. J.	551
Somerville, Tex.	.....
South Bethlehem, Pa.	19,973
Spartanburg, S. C.	17,517
Spier, Tex.	.....
Springfield, O.	46,921
Springfield, Tenn.	2,085
Taylor, Tex.	5,314
Terrell, Tex.	7,050
Titusville, Pa.	8,533
Tower, Minn.	1,111
Transverse City.	12,115
Union, N. J.	21,023
Vicksburg, Miss.	20,814
Vineland, N. J.	5,282
Williamsport, Pa.	31,860
Willis, Tex.	.....
Williston, N. D.	3,124
Wilkes-Barre, Pa.	67,105
York, Pa.	44,750

titled "The Theory of the New Controlled Executive Plan," by Richard S. Childs, in the *National Municipal Review* for January, 1913. In brief, the theoretical gains are as follows: Unlike the Des Moines type of commission plan, it gives complete unification of the administrative establishment. It makes it possible to have a permanent professional expert administrator. It abolishes the one-man power in the mayor-and-council plan, since this executive is under continuous control. It leaves the people free to choose candidates simply as representatives, unlimited by any implied requirement as to executive experience or capacity to earn a large sal-

ary. It abandons the unscientific plan of attempting to select executive experts by popular election for short terms. Except as to its civil-service provisions, the Dayton charter is a valuable contribution to the progress of municipal government. Its features are discussed in detail in an article, "The City-Manager Plan of Government for Dayton," by L. D. Upson, in the *National Municipal Review* for October, 1913.

The following is a list of the communities which have adopted the city-manager plan in 1913; the only other city is Sumter, which adopted its charter in 1912:

	Population
Dayton, O.	116,577
Springfield, O.	46,921
Hickory, N. C.	3,716
Morgantown, N. C.	2,712
Morris, Minn. (modified)	1,685
Phœnix, Ariz	11,134
La Grande, Ore	4,843
Amarillo, Tex.	9,957
Terrell, Tex.	7,050
Cadillac Mich.	8,375
Manistee, Mich.	12,381
Collinsville, Okla.	1,324

General Charter Undertakings.—New Haven, Conn., has secured by act of the legislature the right to draft its own charter. In Washington, D. C., there is a vigorous movement to secure a charter from Congress that will permit the participation of the residents in the management of their city affairs. At present, the governing commission is appointed by the President and confirmed by the Senate, and the residents have no vote. In Detroit a new charter was drafted which will be voted on in February, 1914; it contains no new features of a general character. On Sept. 30 the voters of Minneapolis defeated a commission-government charter. On Jan. 1, 1914, St. Paul will begin to operate under its commission charter. St. Louis has a charter commission at work; a year ago it adopted the initiative and a referendum. Lincoln, Neb., defeated a new charter in December. A new commission-government charter will be voted upon in Omaha in the Spring of 1914. Denver went on a commission basis in May. An effort to repeal the commission form in Spokane was defeated. Seattle is at work on a new charter. Portland, Ore., voted a commission charter. Los Angeles on March 24 adopted a number of important amendments relating to the acquisition of public utilities and providing that all functions of the city are to be divided into nine subdivisions and each member of the council is to be a committeeman for such a division. The functions of the several councilmen under this amendment are not those of administrative supervision, but simply of investigation. Proportional representation was voted down.

State Government by Commission.—In a message to the Kansas legislature dated March 10, 1913, Governor Hodges recommended to its members that they give careful consideration to the possibility of establishing a commission form of government for the state of Kansas. He held that there is no good reason why a state government should be modeled after the Federal Government and maintained that if a commission form of government is good for cities, it should be even better for a state. He said:

> Two years ago I suggested a single legislative assembly of 30 members from 30 legislative districts. I am now inclined to believe that this number is too large, and that a legislative assembly of one, or at most two, from each Congressional district would be amply large. My judgment is that the Governor should be *ex officio* a member and presiding officer of this assembly, and that it should be permitted to meet in such frequent and regular or adjourned sessions as the exigencies of the public business may demand; that their terms of office be for four or six years; and that they be paid salaries sufficient to justify them in devoting their entire time to the public business. Such a legislative assembly would not, I believe, be more expensive than our present system. It would centralize responsibility and accountability, and under the check of the recall would be quickly responsive to the wishes of the people. . . . There seems to me to be no question but what it would be vastly more efficient than our present system, as well as vastly more economical.

Similar suggestions have been made by publicists in Minnesota, Nebraska, Wisconsin, and Illinois, but so far the question remains an academic one, although a bill was actually introduced at St. Paul for a state executive commission.

A resolution was adopted by the League of California Municipalities

on Oct. 10, 1913, providing for the appointment of a committee to report in 1914 on the advisability of a commission form of government for that state. (See also II, *Popular Government and Current Politics.*)

EFFICIENCY AND RESEARCH

Research Bureaus.—The following is a list of bureaus of municipal research prepared for the *National Municipal Review*, with the date of establishment and expenditure during the last fiscal year given for each organization:

Private Agencies

Alameda County Tax Association: secretary, W. S. Gould, Oakland, Cal.; March, 1911, $6,000.

Chicago, Bureau of Public Efficiency: director, Harris S. Keeler, 315 Plymouth Court; August, 1910. $150,000 for three years' work.

Cincinnati, Bureau of Municipal Research: director, Rufus E. Miles, 804 Neave Building; July, 1909. $16,784.

Des Moines, Bureau of Public Efficiency and Economy: secretary, J. G. Mitchell; October, 1911. $800 for first four months.

Hoboken, Robert L. Stevens Fund for Municipal Research: secretary, Genevieve W. Beavers, Hudson Trust Building; 1910. $4,000.

Hudson County, N. J., Citizens' Federation: secretary, Winston Paul, 537 Summit Avenue, Jersey City; 1912. $5,000 or $10,000.

Jersey City, Bureau of Municipal Research: director, Frank Stevens, 46 Montgomery Street; February, 1912.

Memphis, Bureau of Municipal Research, 1909. Activities suspended temporarily in 1911 through lack of funds.

New York, Bureau of Municipal Research: directors, W. H. Allen, Henry Bruere, and F. A. Cleveland, 261 Broadway; January, 1906. $97,763.

Philadelphia, Bureau of Municipal Research: director, Jesse D. Burks, 731 Real Estate Trust Building; July, 1909. $35,000.

Pittsburgh, Committee on Municipal Research (of Civic Commission): secretary, Allen T. Burns, 324 Fourth Avenue; January, 1909. $6,478.

Wallingford, Conn., Bureau of Municipal Research: secretary, Martin F. Plunkett; February, 1911. Expenses negligible.

Wayne County, Ind., Bureau of Municipal Research: secretary, N. C. Helronimus, Richmond, Ind.

Westchester County, N. Y., Research Bureau: director, Otto G. Cartwright, 15 Court Street, White Plains; October, 1910. $10,000.

Public Agencies

Baltimore, Department of Legislative Reference: director, Horace E. Flack, City Hall; January, 1907. $3,573.82.

Boston, Bureau of Municipal Research (of Finance Commission): director, George A. O. Ernst, 410 Tremont Building; 1910. $5,000.

Kansas City, Mo., Municipal Reference Bureau; director, Charles H. Talbot; 1910. $3,000.

Milwaukee, Bureau of Economy and Efficiency: secretary, John E. Treleven; 1910. Dissolved, 1912.

New York, Commissioner of Accounts: 280 Broadway; 1873. $219,169.

Pasadena, Cal., Efficiency Department: mayor, William Thum; 1911. $2,000.

St. Louis, Municipal Reference Library: Jesse Cunningham, City Hall; October, 1911.

Academic Agencies

Columbia University, Politics Laboratory, 1911; directors, Charles A. Beard and E. M. Sait.

Harvard University, Bureau of Research in Municipal Government, 1911; director, W. B. Munro.

University of Illinois, Municipal Bureau, 1911; director, J. A. Fairlie.

University of Kansas, Municipal Reference Bureau, 1909; director, Charles H. Talbot.

University of Nebraska, Legislative Reference Bureau, 1911; director, Addison E. Sheldon.

Whitman College, Walla Walla, Wash., Municipal Reference Department, 1910; director, Charles G. Haines.

University of Wisconsin, Municipal Reference Bureau, 1909; director, Ford H. MacGregor.

Surveys.—The following is a list of the cities in which surveys (mostly under the direction of the New York Bureau of Municipal Research) were made during the year 1912-1913: Atlanta, Dayton, Dobbs Ferry, N. Y., Hoboken, Jersey City, Los Angeles, Milwaukee, Minneapolis, Pittsburgh, Portland, Ore., Port of Portland, Ore., St. Paul, Springfield, Mass., Syracuse, Waterbury, Conn., Yonkers, N. Y.

This list indicates how widespread is the movement for establishing effective administrative methods in cities. The movement is not a new one, but there is novelty in the fact that public-spirited citizens, including a large number of business men, have become sufficiently interested in the success of their governments to provide funds for efficiency work. Groups of business men and public-spirited citizens have provided sums in excess of $1,000 for efficiency work by the New York bureau in 13 cities in 1913, and in a few cities for lesser sums.

These surveys are designed to an-

swer such questions as: Are the purchases of the various city departments made under standard specifications demanding adequate policy? Are all purchases inspected as to compliance with specifications? Are bills audited as to quantities received and unit prices charged? Are pavements contracted for under specifications fitting the permanency of the improvement to the kind of traffic? Is construction work adequately inspected? Are guarantee provisions of contracts enforced? Do the school reports show facts concerning attendance, absences, non-promotion, elimination, medical and physical inspection and treatment, all activities of schools, comparative costs and statistics for past years? Do the city accounts record the actual cost of government each year, instead of merely the total annual receipts and disbursements; do they show the unit costs of the work of the various departments? Does the budget show the estimated cost of all plans and comparative costs for past years?

Efficiency Administration. — As a part of this growing interest in the technique of government is the extensive assumption of efficiency work by municipalities themselves. The councils of Pittsburgh and Portland, Ore., have employed experts to prepare for them definite plans of administrative reconstruction. The finance board of Waterbury, Conn., has employed an expert accountant of the Bureau of Municipal Research to install a model system of accounts. New York City has organized as a part of the equipment of the Board of Estimate and Apportionment a special efficiency staff under the supervision of a trained efficiency engineer. In addition to the application of efficiency methods in city government, which in 1912 and 1913 has advanced with unprecedented strides, charter makers increasingly recommend including in charters provisions to ensure the adoption of efficient administrative methods.

New York.—The efficiency of contractors performing public work and furnishing public supplies has been greatly increased by the establishment and development of the Standard Testing Laboratory at 126 Franklin Street, New York. A careful study of the efficiency of power plants and the work of repair gangs has been completed by the Department of Water Supply, Gas and Electricity. A proper system of records and reports has been installed in the Department of Street Cleaning, which has greatly increased its efficiency by showing the supervisory officers of all grades the weak points in the system from day to day. Work has been begun by the Board of Estimate and Apportionment, tending to equalize the salaries and grades of city employees. A remarkable increase in the efficiency of an inspection force by raising its moral tone has been accomplished in the Department of Buildings. In the Department of Health, Dr. L. F. Fuld has been appointed to advise on matters relating to efficiency and economy. He has studied about 25 specific problems and rendered reports thereon.

The New York police inquiry resulted in constructive suggestions and record forms for the efficient organization and administration of the largest police department in the world, and was the first thorough, scientific study of police organization in this country. The police departments of even smaller cities are the dark and mysterious ground of municipal administration; but when the results of this investigation are made public there should be a marked tendency toward making police matters public business. (See also *Police, infra.*)

Philadelphia.—There has been a steady movement in Philadelphia toward standardizing the organization and administration and a notable advance in departmental accounting and reporting. The controller's report is an especially conspicuous example of a report which tells clearly and convincingly the story of the city's transactions.

The per capita water waste in Philadelphia through carelessness is over 60 gal. per day. The average daily per capita consumption in Philadelphia is 210 gal. In New York it is 103 gal.; in Boston, 157 gal.; in Cincinnati, 128 gal.; in Cleveland, 104 gal.; in Detroit, 158 gal., and in Milwaukee, 111 gal. The elimination

of a per capita waste of 60 gal. per day would save the city $197,010 annually in the pumping department alone, $15,000,000 initial expense in new filtration beds, and added cost in the treatment of sewage to conform with the new law of Pennsylvania on that subject. The city held during the year a water waste exhibit to determine the way of reducing water waste through educating the public to what it meant financially. While this method of civic education was unique, encouragement to undertake it was found in New York's experience in saving $3,000,000 from waste by an expenditure of $75,000 on inspection. In one of the booths the Philadelphia fire prevention commission displayed the various ways in which water can be saved at fires. In another place was shown the waste through taps and leaks of various sizes. Another exhibit showed the per capita consumption of water in Philadelphia and other cities. There were also stereopticon exhibits at night, and exhibits of the various meters authorized by the Bureau of Water.

Wilkesbarre.—A report on the efficiency of the city councils was prepared by R. Nelson Bennett, a member of the council, and published by the Chamber of Commerce.

Chicago.—The plan sometimes termed "the Chicago experiment" has stood the test for four years, has become an integral factor in the city's government, and has attracted the attention of experts in widely separated parts of this country and in England, Germany, Russia, New Zealand and Australia. The germ of the idea emanated from a desire to remedy the chaotic condition of the municipal civil service. When the city civil-service law was passed in 1895, ostensibly taking an army of employees out of politics and placing them under the merit system, little was known in American cities regarding correct administration of civil service. The law provided that the service must be classified and graded, and that promotion must be from the lower to the higher grades by open competition. The only feasible grading plan readily at hand was that of the salary received and a grading system was adopted based on that alone. It was soon recognized that the scheme was unsound, and as late as 1906 the Civil Service Commission in its annual report admitted that fact, but confessed that it had not been able to devise a more feasible one.

Pay determined grade—not duties and responsibility. The personal equation, and not competitive examination as contemplated by the law, determined pay. As a result the principles of civil service were systematically undermined and the vast majority of persons in the classified service stagnated for lack of incentive. From this condition came the idea which resulted in the Chicago plan for increasing municipal efficiency. In 1909 a Municipal Efficiency Commission was appointed to adjust salary controversies, to fix salaries, to recommend uniform salaries for like duties, and "to make such recommendations as its investigation may prompt, looking to greater municipal efficiency." This was the first time, it is claimed, in the history of American cities that the word "efficiency" was used in connection with municipal activities; the previous watchword had always been "economy."

The work of this Commission has been reviewed in previous issues of the YEAR BOOK (1911, pp. 234-6; 1912, p. 197). A complete report of its investigations and results was published in 1913. During the year also the Civil Service Commission reported on the first year's work of the permanent efficiency organization created by the Efficiency Commission before its retirement in 1911.

Detroit.—A city "efficiency expert" has been decided upon by the charter commissioners. He will be known as the city statistician and will be under the city clerk.

Milwaukee.—The Common Council has passed an ordinance creating a Bureau of Municipal Efficiency and Accounting. The ordinance creates the position of director at $3,000 and an assistant at $1,800. It also provides that the first incumbent shall hold office until 1915 and that the term shall be two years thereafter, the two years to cover the last half of one administration and the first half of the next. The old bureau

lapsed at the close of the recent Socialist administration.

Los Angeles.—A comprehensive survey of the city was completed in the Spring of 1913, at the request and expense of the Municipal League. As a result an Efficiency Bureau has been officially established by the city council.

University Agencies.—The municipal reference bureau of the extension division of the University of Kansas has recently compiled a table showing the bonded indebtedness, assessed valuation and tax levy of each of the eight first-class and 31 second-class cities of that state for the year 1912. Similar bureaus have been established at Harvard, the University of Wisconsin and other universities, and are proving of much value both to the students and to the public.

MUNICIPAL ORGANIZATIONS

National Municipal League.—The nineteenth annual meeting of the National Municipal League and the twenty-first National Conference for Good Government was held at Toronto, Canada, Nov. 11-15. Among the subjects discussed were the status of liquor-license legislation, the city-manager plan, the model municipal court, proportional representation, preferential voting and direct primaries, Ontario municipal methods, economic housing in Toronto, Ontario's publicly owned hydroelectric system, the actual operation of the Oregon system, scientific management of the public works of cities and the control of public utilities. William Dudley Foulke, Richmond, Ind., was elected president, George Burnham, Jr., Philadelphia, treasurer, and Clinton Rogers Woodruff, Philadelphia, secretary; and the following were elected vice-presidents: Camillus G. Kidder, Orange, N. J.; Jane Addams, Chicago; A. Lawrence Lowell, Cambridge, Mass.; George McAneny, New York; J. Horace McFarland, Harrisburg, Pa.; Charles Richardson, Philadelphia; Chester H. Rowell, Fresno, Cal.; John Stewart Bryan, Richmond, Va.; and Dudley Tibbits, Troy, N. Y. Important reports were presented on the subjects of franchises, budgets, commission government, civic education and municipal programme. A volume on the *Social Center*, by Edward J. Ward, has been added to the "National Municipal League Series" (D. Appleton & Co.).

The American Society of Municipal Improvements held its annual meeting at Wilmington, Del., Oct. 7 to 10. The Society accepted an offer from the Association for Standardizing Paving Specifications in which the latter proposed to unite with the Society and turn over to it the funds in its treasury. Reports were received from committees on standard specifications (stone block, brick, macadam, gravel and sewer specifications), standard forms, sewage treatment and disposal, fire prevention, and minimum illumination for street lighting. Edward H. Christ, Grand Rapids, Mich., was elected president and Charles Carroll Brown, Indianapolis, secretary.

An International Municipal League was organized during the year on the initiative of the Union of Canadian Municipalities. It is designed to bring into effective correspondence the national organizations interested in municipal affairs. The secretary is Clinton Rogers Woodruff, 703 North American Building, Philadelphia.

American Civic Association.—The president of this Association is J. Horace McFarland, and the secretary, Richard B. Watrous, Union Trust Building, Washington, D. C. Its principal activities during 1913 have been directed to the continued preservation of Niagara Falls from further spoliation and the utilization of the Hetch Hetchy Valley for municipal purposes.

The League of American Municipalities held its annual meeting in Winnipeg, Manitoba, in July. J. J. Ryder, of Omaha, was reëlected president, and Robert E. Lee, of Baltimore, secretary.

The Progressive Party and Municipal Affairs.—Mr. Roosevelt has thus defined the functions of the Progressive party in municipal affairs in an introduction to a pamphlet, "The Making of a Municipal Platform," by Wm. L. Ransom:

> Unlike both the old parties, the Progressive party has a platform which in

very important respects applies in local, precisely as in state and national, affairs. This may mean that in certain cities the local Progressive organization offers far the best instrument for obtaining in municipal matters social and industrial justice through clear and efficient governmental action. But in many of our cities, including all our biggest cities, the conditions are so utterly different that our first effort must be to keep the local and national issues distinct. In these larger cities, the problems of administration and policy are sometimes more formidable and difficult than those confronting many states; but the conditions of economic injustice, the opportunities for constructive governmental activity, and the consequences of retrogressive administration, all come a little more closely home to the citizen than similar phases of state and national government sometimes do. It is not so much that the problems, the conditions, or the needs, are so much different in municipal as compared with state and national administration, but that they are more obvious and undeniable. Thus it comes about that in these cities there are many good citizens who thus far—mistakenly, as we believe—oppose us on national and state-wide application of our fundamental principles and purposes, but are willing to join with us in giving local application to essentially the same humanitarian conceptions of government. Many citizens who are not yet progressives, with either a large or a small P, in national affairs, are liberals of demonstrated tendencies in municipal matters. It is surely desirable that all citizens who agree on these fundamental matters of municipal policy, and who desire to work for substantially the same ends in municipal affairs, should come together and act together in the war against both the forces of reaction and privilege and the forces of sheer corruption and lawlessness. This has nothing whatever to do with party amalgamation, and to be successful it must have nothing whatever to do with that kind of fusion which consists merely in dickering for division of offices among various political organizations. It must represent the joint action of decent citizens, irrespective of their several attitudes on national politics, on behalf of a platform plainly expressing the fundamental needs of the local situation, and on behalf of candidates whose characters and expressed convictions are such that the sincerity of their acceptance of the platform is evident.

A Progressive Municipal Service has been established with headquarters in the Forty-second Street Building, New York City. This service has undertaken an application to local conditions of the scheme of the party's national organization. The experiment is an interesting one, extending as it does to boroughs and towns no less than to cities. Under the administrative board of the party executive committee, a committee has general charge, through a chief of service. From this head the service radiates into two bureaus, that of education, and that of legislative reference. There are four general departments: social and industrial justice, conservation, popular government, cost of living, and corporation control. Both the bureaus and the departments have their appropriate subdivisions. The municipal, borough, or town service committees operate through local chiefs of service. In the local organizations there are the same bureaus and the same general departments, with their appropriate subcommittees.

The operation may be illustrated, in the case of cities, by the example of the New York County Progressive service organization, New York County and the Borough of Manhattan having the same boundaries. Under the general charge and education and publicity committees, corresponding to the education and legislative reference bureaus of the national scheme, there are 14 subcommittees, covering the recruiting, training and placing of speakers; housing and congestion problems; markets; licenses; police department; board of education; city and state officials and the conduct of their offices; the board of aldermen, their records and votes on important questions; local and auxiliary organizations and the organization of clubs among the foreign population; poll watchers and election workers, to insure honesty in elections; and finance and printing. (See also I, *Politics and Parties.*)

The Socialist Party Information Department and Research Bureau.—In November, 1912, the Socialist party established at its national headquarters in Chicago an information department and research bureau. The election of a thousand or more Socialists to public office, mostly municipal which put them in positions where accurate information on specific problems was an absolute necessity, served to emphasize the need of such a service. The National Convention in 1912 authorized the National Committee to organize the department and put it in operation. In general it answers the inquiries of the party membership on all matters concerning the Socialist movement. The service

is rendered without charge, and while established particularly for the party membership, is not limited to them. The director of the department is Carl D. Thompson, 111 North Market Street, Chicago.

The department specializes in municipal problems. Particular attention is given to the form of government, to municipal ownership, efficiency in administration and the more technical problems of municipal government. In the nature of the case particular attention is given to measures and means for improving the conditions of labor. In addition to these specific problems the department deals with the more general social and economic problems, such as poverty, vice, crime, coöperation, immigration and the like. The department also concerns itself with all Socialist party methods and tactics.

An interesting feature of this department is the various lines of coöperating forces that have been brought together. The Intercollegiate Socialist Society of the United States, numbering in its membership some of the most noted scholars in the university circles of the country, the International Socialist Bureau of Brussels, and the Socialist organizations of England are coöperating. Lawyers, expert accountants, engineers, and scientists, men who are specialists in their lines, have volunteered their services in cooperation with the party. When occasion arises the bureau is able to put a group of Socialists elected to a city council in touch with some of the best and most competent authorities in America along technical lines. In addition to the distinctly Socialist forces an effort is being made to set up coöperation with all lines of technical information. To this end the department seeks to coöperate with the municipal reference libraries that are being developed throughout the country; with the legislative reference libraries in the various states; and with public libraries and technical organizations.

To date, the National Convention of Socialists has made no recommendation upon the subject of municipal charters. There are many features of the commission form to which it objects and locally it has opposed in many instances the adoption of such a form. A committee of the national party is at work on a formal report. In the meantime Mr. Thompson has prepared a tentative outline which was published in the issue of the *National Municipal Review* for July, 1913. It advocates municipal home rule, proportional representation, the recognition of parties in local affairs, direct legislation, and a responsible executive. (See also XVI, *Socialism.*)

MUNICIPAL ACCOUNTING

St. Louis.—A special report descriptive of the new accounting system of St. Louis was issued by the city comptroller in April. The facsimile reproductions of the new accounting forms are of special value. In devising a cost system for the park department use has been widely made of the mnemonic classification. The classification of appropriations by departments, bureaus, accounts and objects has been based on an actual analysis of vouchers showing the city's purchases. A combination of figures and letters, not, however, the mnemonics, comprises the designations which will be used in the accounting and auditing processes. A complete index of commodities comprehended within each of the 20 standard accounts has been prepared for use of the city's departments.

In connection with the budget classifications of St. Louis, accounting officers and students are familiarizing themselves with the classifications recommended by the President's Commission on Economy and Efficiency, and also with those developed by Chicago, New York and Cincinnati. The Department of Public Works of Philadelphia has probably done more in the line of cost keeping with the mnemonic symbol than any other city.

Pittsburgh.—The city comptroller during the year began a thorough revision of the city's accounting and auditing system. The installation thus far completed includes the introduction into the new ledger of funding accounts, registration of open market orders and contract liabilities. A study of revenue control methods has been commenced which, it is intended, will

lead to the establishment of accounting and auditing control over both revenue accruals and receipts. A property appraisal has also been authorized, and it is contemplated that by the end of the current fiscal year a complete capital balance sheet can be produced.

New York.—The New York Chamber of Commerce through its committee on finance and currency completed in October, 1912, an examination into the progress of the installation of the new accounting system of the city in the interval since the preceding examination by the same committee in 1909. Hampered by lack of authority, lack of funds, a shifting force of temporary clerks to do the work, and an internal opposition on the part of the old *régime*, Comptroller Prendergast in 1912, after over two years of slight progress, reorganized the installation staff. Since then, although some of the impedimenta still exist, much more rapid progress has been made and there has been good reason to believe that the new system would be in full and complete operation by the end of 1913. The Chamber of Commerce report says, however, that before completing the introduction of the reform it will be necessary to strengthen the hands of the comptroller and to settle definitely several deplorable conflicts between the departments and the controlling central officers.

Uniform System for New York Cities.—The state comptroller and his accounting staff have been engaged in devising a uniform system of accounts for second-class cities in New York. The details of the system have been practically all worked out and the comptroller's office is ready to install the system on request. This is the same plan which has been followed by the Massachusetts Bureau of Statistics, the Board of Public Affairs in Wisconsin and similar bureaus in Ohio, Indiana, Iowa and other states.

Chicago.—In January, 1911, after several months' study, the Chicago Bureau of Public Efficiency submitted to the County Board of Cook County a formal report in which a modern form of segregated budget was recommended as a basis for better accounting control over the county's expenditures. No action was taken by the County Board until 1912. Meanwhile the Audit Company of Illinois had completed a four-year audit of the county books and substantiated the findings and recommendations of the Bureau of Public Efficiency with respect to many of the financial methods.

Ohio.—Ohio cities adopting special forms of accounts under new charters must first submit them to the Bureau of Public Accounting in the office of the State Auditor, so that the state requirements with regard to uniformity may be enforced.

Metz Fund.—The most important work of the Metz Fund during the past year was the publication, through D. Appleton & Co., of its *Handbook on Municipal Accounting*. The Fund also made a detailed field study of the administrative methods in a number of German cities. It prepared and submitted to President Wilson a plan for making Washington, D. C., a model city to which the administrative officials throughout the United States might look for direction as to the best administrative methods and practices in municipal government. The President has expressed an interest in the matter, and it is expected that steps will be taken to carry out some if not all of the suggestions.

National Association of Comptrollers and Accounting Officers.—The eighth annual convention of this association was held in Chattanooga, Tenn., June 5-7. The officers elected were: president, Samuel L. Wilhite, Comptroller of Louisville, Ky.; first vice-president, W. G. Justice, Comptroller of Buffalo, N. Y.; secretary, George M. Rex, C.P.A., Providence, R. I.; treasurer, Duncan MacInnis, Department of Finance, New York City. Milwaukee was chosen as the next meeting place.

CITY PLANNING

City Planning Commissions.—The City Plans Commission of Salem, Mass., presented its first annual report under date of Dec. 26, 1912; the city's individuality is recognized as an element of chief importance. In Connecticut the legislature has authorized a city plan commission for New

Haven, to be composed of the mayor, city engineer, president of the board of aldermen, and four citizens to be appointed by the mayor. An act was passed by the New York legislature of 1913, enabling cities and villages to appoint city planning commissions. New Brunswick, N. J., has voted to avail itself of the law which enables cities of the first class to appoint city planning commissions. In St. Louis a report on a central traffic parkway has been recommended by the City Plans Commission (*A. Y. B.*, 1912, p. 205). A plan for proposed improvements in Santa Fé, N. M., as offered by the City Planning Board was issued early in 1913, and a "Greater Portland" plan for Portland, Ore., has also been issued.

The following is a list of the cities which have created city planning commissions since June, 1912: Cincinnati, O.; Louisville, Ky.; Paducah, Ky.; Scranton, Pa.; Omaha, Neb.; Schenectady, N. Y. (Department of Parks and City Planning); New Haven, Conn.; Pittsfield, Mass.; Lawrence, Mass. A full review of city planning reports so far published appeared in the *National Municipal Review* for January, 1913.

While New York City has no city planning commission, sundry official reports on city planning features have been presented which have placed New York among the leaders in constructive city planning. An illuminating report on terminal improvements was presented in March by a committee of the Board of Estimate and Apportionment which is committed to the policy of city planning.

Massachusetts.—Under an act of April 16, 1913, it is provided that every city in the state and every town having a population of more than 10,000 at the last preceding national or state census, is authorized and directed to create a board to be known as a planning board, whose duty it shall be to make careful study of the resources and possibilities and needs of the city or town, particularly with respect to conditions which may be injurious to the public health or otherwise injurious in and about rented buildings, and to make plans for the development of the municipality with special reference to the proper housing of its people. The first city and town planning conference in Massachusetts was held on Nov. 18 and 19 in the State House under the auspices of the Homestead Commission. The conference was held with the hope that city planning will be shown to be "a constructive fundamental effort to correlate the community's activities so that the welfare of all citizens and of the interests of the community will receive proper attention."

Pennsylvania.—Governor Tener in July signed the Mitchell bill providing for the establishment of city-planning departments in cities of the third class in the state. These departments of city planning are to be in charge of a commission composed of five persons selected by the mayor and council for five-year terms. They are to have authority to supervise the location and widening of streets, parks, parkways, playgrounds, public buildings, civic centers and other public improvements not only in the city but also for three miles outside of city limits. They may plan for an area of three miles beyond the city limits, and they may veto any construction within that limit that contravenes those plans. While the commission may not itself do constructive work outside the limits of the city, it may thus prevent obstructive work within three miles of such limits. Another act enables cities of the state to place parks and playgrounds, as well as streets, upon the city plan, and provides that if, after such plotting, the owner builds within the limits of an area shown, he shall not be entitled to damages for the structure when the property is actually condemned.

Philadelphia.—The Supreme Court of Pennsylvania, in a unanimous decision, written by Justice Mestrezat, has declared unconstitutional the Parkway Act of 1907, on which was based the ordinance of the Philadelphia Councils authorizing the condemnation by the city of land adjoining the Parkway and its resale to other persons or corporations. A ruling of Judge Sulzberger invalidating the ordinance of Councils of 1913, which contemplated the sale of the property of a life insurance company to the telephone company, was sustained in

the decision. The Act made provision for the condemnation of private property within 200 ft. of a public improvement like the Parkway. Judge Sulzberger held the act and the ordinances condemning the property to be valid, but declared illegal the ordinance of Jan. 16, 1913, containing the agreement of sale to the telephone company. Justice Mestrezat, however, declared the act itself invalid, on the reasoning that the use to be made of properties outside a public highway is not a public use for which private property may be taken by the city against the consent of the owner. The Governor later vetoed a bill which undertook to amend the Parkway Act by requiring that when a city under the provisions of that Act took by condemnation proceedings property within 200 ft. of the boundary line of parks or parkways in order to protect the same by resale with restrictions as to the manner of its use, it would be required to reconvey such property to the owner from whom it was taken.

Chicago.—A decision of great importance to Chicago is Chicago City Railway Co. *v.* South Park Commissioners (101 N. E. 201). The decision affirms the right of the city to control its own streets. The limits of the authority of the park commissioners over streets taken over as parks and the intersections of such boulevards with public streets was the point at issue. The railway company refused to comply with conditions prescribed by the park commissioners and disputed their jurisdiction under the theory that it was authorized to build as it proposed under the franchise upon which it was operating and that the authority of the commissioners was not exclusive. The court found that the control of the park commissioners as to park and boulevard uses is exclusive, but that the city's authority over the intersections of the boulevards and public streets is not entirely taken away. Such intersections remain parts of the public streets under the concurrent jurisdiction of the park board and the city. While the city retains the sole power to permit the laying out and maintenance of street railways and while the park board can not prevent the construction of a street railway across the intersections, it does have the right to require that the work be done subject to such reasonable limitations and conditions as will cause the least interference with their use as driveways and boulevards. This ruling makes possible the continuation of the park system and permits the park plans to be carried out without being broken into too seriously by the railways. At the same time the park board is not confirmed in any such authority as will permit it to interfere seriously with legitimate and reasonable traffic plans.

The location of a terminal for the Pennsylvania and allied railroads has raised an exciting controversy which has been tentatively settled by the City Council appointing John F. Wallace as an expert to report on the question of a site. The City Club has protested against an investigation by a single expert and has made a formal offer to the Council's committee on railway terminals, in case that committee could not obtain sufficient funds, to guarantee the fee of one member of a commission of three or two members of a commission of five, such members to be chosen by the committee and the City Club. Subsequently the Club retained Bion J. Arnold to prepare a report which will probably largely influence the final settlement.

A contract was entered into on March 30, 1912, between the Illinois Central Railroad Co. and the South Park Commissioners to enable the Park Commissioners to carry out the development of the shore of Lake Michigan as proposed in the plan of Chicago originated by the Commercial Club and committed by the City Council to the Chicago Plan Commission for development (*A. Y. B.*, 1911, p. 241). The park plan provides for the creation of approximately 1,500 acres of park space along the lake front, beginning at Grant Park in the center of the city, by the filling in, first, of a strip of shore land approximately 300 ft. wide, facing the open lake, this strip to extend solidly to connect with Jackson Park on the south. The strip is to be planted with trees and given informal landscape treatment. Along this shore will run a watercourse, approximately 500 ft.

wide, for small craft, for sail-boats, motor boats, canoes and racing shells. Beyond this, built to protect it and provide safety and shelter to pleasure craft, will be an island, approximately 700 ft. wide, and extending five miles from Grant to Jackson parks, planted with trees, having a shore drive and winding walks, and, under the proposed plan, providing frequent bathing beaches for the city's summer multitudes, as well as athletic grounds, baseball fields, running tracks, tennis courts, football fields, a stadium and a public gymnasium. The Park Commissioners and the Illinois Central Railroad Co. provide for the acquiring by the Park Commissioners of the riparian rights attaching to the land lying between Grant and Jackson parks; for the establishment of a specified permanent boundary line dividing the railroad property from the submerged lands to be acquired by the Park Commissioners; and for the construction of specified viaducts over the railroad tracks. The contract was modified in certain details by a supplemental agreement, signed June 26, 1912, to permit an unobstructed view of the lake and for a prohibition upon the use of the additional right of way until the railroad company arranges for the operation of its four tracks by motive power other than steam.

New York Height of Buildings Commission.—The Board of Estimate and Apportionment of New York recently appointed a commission on the height, size, and arrangement of buildings, with Edward M. Bassett, chairman, George B. Ford, secretary, and Herbert S. Swan, investigator. This committee has submitted a report in which the following questions are considered: under the head of "methods of control": uniform regulations for all buildings, regulations varying with the class of buildings, regulations varying with the particular district, general scope of constitutional regulation, regulations based on the width of street, regulations based on the maintenance of a minimum angle of light; under the head of "districting": regulations varying with the particular district, constitutionality of districting and the necessity for it, height district in American cities like Boston, Baltimore, Indianapolis and Washington, the regulation of open spaces in Richmond, Virginia, and the establishment of residential and industrial districts in American cities—Baltimore, Los Angeles, Seattle and cities in Wisconsin, Minnesota, New York and Massachusetts.

The commission held an exhibit in connection with the city-planning exhibit at the New York Public Library. It was chiefly devoted to analysis of local conditions, mainly of the existing development of real estate, showing the general height and occupancy of all buildings, the height of all factories, hotels, office buildings, storage lofts, and residence buildings, land values, percentage of lot covered, unimproved property, frame buildings inside and brick buildings outside the fire limits, the detailed height of buildings on certain streets, perspectives showing use of artificial light in tall office buildings at noon on a bright midsummer day. The other portion of the exhibit was devoted to the height, area and type of occupancy regulations in European and American cities. The zoning system in Europe was represented by maps of such typical cities as Berlin, Breslau, Dresden, Dusseldorf, Essen, Frankfort, Karlsruhe, Munich, Stuttgart and Vienna. Height districting in America is represented by maps of Boston, Baltimore, Indianapolis and Washington; and occupancy districting by Baltimore, Los Angeles, Milwaukee and Minneapolis.

Excess Condemnation.—An amendment to the constitution of New York State authorizing the legislature to pass laws for the excess condemnation of property in cities was approved on Nov. 4. Under this authority, the legislature of 1914 will be asked to pass laws enabling cities like New York to condemn property in excess of the immediate public improvement and thus control the surroundings of public improvements and likewise help to finance them.

Municipal Art Commissions.—On May 13, a meeting of the members of American art commissions was held in New York. Representatives of nearly every one of the 15 municipal commissions of the country were pres-

ent. Two states, Connecticut and Massachusetts, have appointed art commissions and the Federal Government has appointed a national Fine Arts Commission; representatives of these also were present.

The Fifth National Conference on City Planning was held at Chicago in May, for the first time since its organization meeting west of the Alleghanies. The conference also, for the first time, undertook to supplement its papers and discussions by the presentation of actual plans, drawings and sketches to illustrate more specifically than papers can some of the ways in which city planning problems may be worked out. The chairman, Frederick Law Olmsted, with the cooperation of the members of the executive committee, outlined a complete city planning programme which was the most interesting feature of the conference.

HOUSING

New York.—An up-to-date and complete housing code for second-class cities in New York became a law on May 31, 1913. It has the endorsement of housing reformers.

Pennsylvana.—An Act of July 22, 1913, established a division of housing and sanitation attached to the department of public health and charities in cities of the first class and regulated the erection, alteration, repair, use, occupancy, maintenance, sanitation and condemnation of dwellings, two-family dwellings, rooming houses and tenements and the grounds surrounding the same.

A Bureau of Housing was established by another act approved on July 24, 1913, with the duty of investigating the sanitary conditions of tenement, lodging and boarding houses, and when the same are found to be a menace to those occupying the same, or employed therein or to be overcrowded, to condemn the same, and to notify the owners or agents thereof, setting forth the unsanitary or overcrowded conditions thereof, and specifying the changes or alterations which shall be made for the purposes of relieving such conditions.

Philadelphia.—A Suburban Housing Association has been established to look after housing in the suburbs of the city. It has offices in the Empire Building, close to those of the Philadelphia Housing Commission.

Cincinnati.—The Housing Committee of the Chamber of Commerce is organizing two companies (capital $500,000 each) to erect and manage wage-earners' dwellings.

Los Angeles.—The Housing Commission has been made a bureau of the Department of Health.

Washington.—There has been some legislation that has improved conditions. The Board for the Condemnation of Unsanitary Buildings had, up to May 1, 1913, demolished 1,692 of the worst shacks and caused 1,555 to be repaired. There is a law prohibiting the erection of houses on alleys less than 40 ft. wide; the law, however, works two ways, and *The Survey* is authority for the statement that Washington has made very little progress with the problem of its alley dwellings.

The Third National Housing Conference was held in Cincinnati, Dec. 5 and 6, the second conference having been held in Philadelphia in December, 1912. Robert W. DeForest, New York, is president of the National Housing Association under the auspices of which the Conference is held; Lawrence Veiller, secretary (105 E. 22nd St., N. Y.), and John Ihlder, field secretary. Mr. Ihlder has contributed an extensive review of reports on housing to the *National Municipal Review* for October, 1913.

Chicago City Club's Housing Exhibition.—The central feature of this exhibition was a series of some 40 plans offered in a competition promoted by the City Club for the development of a quarter section in an outlying district of Chicago. The competition was not limited to local men; the first prize was won by a Chicagoan, William Bernhard; the second by Arthur C. Comey, Cambridge, Mass.; and the third by Albert Lilienberg, Gothenberg, Sweden. All these plans show a radical departure from the typical rectangular street system which reached its apotheosis in Chicago.

FIRE PREVENTION

Fire Prevention Day. — A special Fire Prevention Day was observed in 1913 in 24 states and in the District of Columbia: May 3 in Wisconsin; Oct. 8 in Kentucky; Oct. 9 in Alabama, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Minnesota, Montana, Missouri, New York, North Carolina, Ohio, South Dakota, Utah, and Virginia; Oct. 19 by Oregon; Nov. 5 by Oklahoma and Texas; Nov. 9 by Massachusetts and Vermont; and Nov. 15 by the District of Columbia. It is natural, as the *Quarterly* of the National Fire Association has pointed out, that the middle states should choose Oct. 9, the anniversary of the Chicago fire, for their fire prevention demonstration; as the Pacific coast might be expected to select April 18, the anniversary of the San Francisco fire, and the southeastern states to commemorate the anniversary of the conflagration of Baltimore or of Atlanta.

Progress in Fire Prevention.—A report to the National Board of Fire Underwriters on fire prevention dated May 22, 1913, declared that a comparison of recent reports with those issued six or eight years ago shows that by reason of the erection of buildings of an improved type of construction, generally replacing old and weak buildings, the providing of window protection and the installation of other fire-preventive equipment, conditions in many of the blocks which previously had a high conflagration hazard have been very materially bettered. However, these improvements, while reducing the chances of a conflagration, have not been sufficiently radical as yet in any city to eliminate danger of spreading fires. The old construction common to our cities is, and for many years to come will be, weak from a fire-prevention standpoint.

There has been a great improvement in the laws enacted as to the care of premises and guarding of the common hazards, and in several instances a marked improvement in electrical conditions. The report also declared that in a number of cities the reliability and adequacy of the water supply has been very materially improved, and in most of them there is a general bettering of the distribution system. Fire departments have in general become more efficient through drills and training; the condition of fire engines and the ability of the men who operate them show marked improvement in a great many cities. Automobile apparatus is becoming every day a stronger factor in fire-department operations, and in some cities has almost entirely replaced horse-drawn apparatus, with apparent increased economy and efficiency. (See also XXIII, *Mechanical Engineering.*)

The Wisconsin Legislative Fire Insurance Investigating Committee presented its formal report to Governor McGovern in March. In connection with its work it prepared a report on the causes of fire in the United States, basing its conclusions upon the annual reports of 1910 of the leading cities in the country. The approximate annual loss in these cities is $40,000,000, and the report points out that it is safe to say that 60 per cent. of the total number of fires in the cities were due to carelessness; 10.5 per cent. to careless burning of rubbish; 6.3 per cent. to careless handling of matches; 10.8 per cent. to defective chimneys and furnaces; and 3.97 per cent. to cigars, cigarettes and pipes. The report states that the sense of security given by insurance is a great cause of indifference to the fire loss. It strongly emphasizes the need of fire prevention and of a concerted effort toward a reduction of the fire loss, and proposes to shape rate-making, inspections, the form of the policy contract and methods of transacting fire-insurance business for this purpose.

The Philadelphia Fire Prevention Commission was appointed by Mayor Blankenburg on Jan. 26. Its work has progressed rapidly and much has been accomplished toward eliminating fire hazards. A force of 45 firemen, detailed from fire houses in the various sections of the city, are assigned to the work of inspection. These men have practical experience in fighting fires, and have a first-hand knowledge of their causes; with the drilling they have received at the office of the Commission and a careful study of the

data compiled from the daily reports of the fire marshal, they have developed into an efficient corps of inspectors.

National Fire Protection Association.—The seventeenth annual meeting of the National Fire Protection Association was held in New York on May 13-15. All the sessions of the meeting were given up to discussions of the Association's fire-prevention work. The committee on fireproof construction presented a report which was regarded as the first advance in defining standards of true fireproof building construction. The report fixed the general specifications for a so-called standard building which would be truly fireproof with the most hazardous character of contents. The four general requirements for a building of this class were stated as follows:

1. All material entering into its construction shall be incombustible and all structural parts shall resist fire for at least four hours at an average temperature of 2,000 deg. F. without severe damage; 2. Ample and safe means of egress shall be provided for all occupants; 3. The building shall be so constructed that a fire will be confined to the area in which it originates, and the building will be protected against exterior fire by approved doors and windows, etc.; 4. The building will be equipped with such apparatus that a fire can be extinguished in it in the incipient stage.

The electrical committee reported that it had completed and adopted a general revision of a national electrical code by rewording certain technical phrases which removed the few legal obstacles which had been encountered by various municipalities in adopting the provisions of the code for their building requirements. There were also some advances in the rules for rubber-covered wire, armored cable, and conduit. Perhaps the most important change was in making the grounding of alternating-current secondary circuits mandatory. This step was taken for the greater protection of life by removing the possibility of chance high potentials on low-voltage service lines.

The following officers were elected: president, R. D. Kohn, New York; vice-president, F. M. Drake, Louisville, Ky. F. H. Wentworth, Boston, was reëlected secretary and treasurer.

National Fire Prevention Conference.—The first National Fire Prevention Conference was held in Philadelphia, Oct. 14-18, under the auspices of the Fire Prevention Bureau of the city. Sundry phases of the question were discussed by competent experts and there were numerous demonstrations of up-to-date appliances. (See also XIV, *Property and Casualty Insurance.*)

VICE INVESTIGATIONS AND THE SOCIAL EVIL

New York.—The social evil has been the subject of close study and scrutiny by an aldermanic committee, a citizen's committee and the District Attorney during the year. Before the aldermanic committee, Samuel H. London from an actual census reduced to a card index form, swore that there were 26,000 women in New York City who handed over a part or most of their earnings to men connected with the "business." A bill to establish a Morals Commission was vetoed by Mayor Gaynor. (See also *Police, infra.*)

The demand for home rule in police matters has grown during the past two or three years. Dr. F. C. Howe, director of the People's Institute, pointed out in an address before the City Club:

The laws directed against prostitution were enacted when our population was for the most part rural, agricultural. We made it a crime. It cannot be winked at, tolerated, or permitted in any form. Occasionally men have been elected mayor who have taken theoir oath seriously. They have endeavored to force the laws to the letter. What happened? The least that can be said is that the evils which flowed from the rigid enforcement of the laws were as bad as those which were corrected. The poison was scattered all over the community. It was spread among the innocent. It was sent into the tenement and the apartment house. It brought temptation to those who had never known of its existence. . . .

I know of no country in the world where the saloon and the restaurant is classed as a criminal business. On the continent of Europe it is not even treated as a nuisance. The taxes against it are insignificant, competition produces pure, unadulterated drinks and everywhere where the saloon is treated like any other business drunkenness is unknown. I know of no other country that treats prostitution as a crime. It is handled by cities just as is disease. bad sanitary conditions, or any other

influence which may injure the community. European cities have full control over these things, and they handle them in the greatest variety of ways; but never, so far as I know, are they bound by state laws, and never are these things treated as though they were crimes.

Philadelphia.—A police quarantine over houses of ill fame has been established by the Director of Public Safety. Patrolmen are stationed in front of all such places to warn away intending patrons and to prevent the women from carrying on their trade. So far there has been no report of results.

Pittsburgh.—A Morals Efficiency Bureau has been established by an act of the legislature. (See also *Police, infra.*)

Baltimore.—The Governor has appointed a commission to study the situation and report thereon. In addition there has been an unofficial study and an organized effort to improve conditions by the Society for the Suppression of Vice.

Chicago.—Ever since the publication of the report of the Vice Commission there has been a persistent onslaught on the social evil, by various official and unofficial bodies. A persistent effort to break up the segregation policy has been made; but it is too soon to report definite results. During the year there was a statewide investigation of vice in Chicago, Peoria, and other cities by a special committee of the Senate headed by Lieutenant-Governor O'Hara. Employers of girls and women in department stores, mail order and supply houses, were subpœnaed to testify regarding the wages they pay, the hours and conditions of labor, and the profits of their business. They were asked for estimates of the cost of living among their employees, and their opinion as to the relation between the rate of wages and moral standards.

Some, according to *The Survey*, admitted that low wages occasionally account for the demoralization of employees; most, however, denied any perceptible effect of the rate of pay on moral standards. The other witnesses subpœnaed consisted almost entirely of the inmates and keepers of places of ill fame which were raided, in some instances, for the purpose of securing testimony. The chairman of the committee entered into communication with the governors and legislatures of all the states, urging country-wide coöperation in investigating vice conditions and legislation on the minimum wage and other measures deemed necessary to protect the moral standards of working girls and women. Assurances are reported to have been received from two-thirds of the states that such coöperation would be given.

A police ordinance passed by the Chicago Council on Dec. 30, 1912, fixes the responsibility for "the supervision of the strict enforcement of the laws and ordinances pertaining to all matters affecting public morals" on the shoulders of a second deputy superintendent of police, who "shall not be a member of the police force" (see also *Police, infra*). In addition, its municipal court has recently established a branch known as the morals court for the adjudication of all cases arising from the social evil. The select committee of the Chicago Council appointed to investigate the social evil, in a preliminary report dated May 5, recommends, among other things, constant repression with a view to total annihilation and elimination of commercialized and segregated vice.

Minneapolis. — The Council passed an ordinance on Oct. 25, 1912, creating a Public Morals Commission consisting of nine citizens appointed by the president of the Council, this commission to investigate the moral conditions and social vice existing in the city and to submit a report to the mayor and the Council every three months or oftener, with such recommendations as will promote public morals.

Portland, Ore.—The Vice Commission submitted its final report in January. It had accomplished the enactment of the following legislation: (1) an ordinance affecting the sale of a certain kind of post cards; (2) an ordinance forbidding the employment of women in shooting galleries; (3) an ordinance affecting the licensing of massage parlors; (4) the passage of a state statute called the "tin-plate" law (see below); and (5) an ordinance and a statute called the nuisance and abatement law along the lines of the Iowa Injunction Act.

It also assisted in the passage of a statute establishing a Minimum Wage Commission in Oregon (see also XVII, *Labor and Labor Legislation*).

The Council on Oct. 23, 1912, passed two ordinances directed against the social evil. The aim of the first ordinance is to provide a keener sense of stewardship toward the community for the proper conduct of property by its owners by requiring all buildings used as hotels, apartment, rooming, lodging, boarding and tenement houses or saloons to have placed on the same a plate bearing the name of the owner, of such size and distinctness as will render it easily legible to persons passing in the street. The other ordinance provides for the regulation of hotels, rooming and lodging houses for the purpose of increasing the hazard under which a landlord may attempt to traffic in immorality. Proprietors of such buildings are requested to give a surety bond of $1,000 to the city as a guarantee for the faithful observance of the ordinance, such bond to be forfeited after the second conviction for the violation of the ordinance in the municipal court.

San Francisco.—Since the early part of the *régime* of Mayor McCarthy, a municipal clinic has existed as an adjunct to the segregated district. The women of the underworld who publicly practiced prostitution were compelled to submit themselves to a physical examination or be arrested. In return for the fee paid to the clinic the women received a certificate of examination and were enabled to show, in aid to their solicitations, a guarantee of their freedom from venereal disease. The Public Morals Committee called the attention of the Mayor to this condition of affairs during the early part of the year and later the Mayor withdrew the police detail from the clinic. An effort is pending to prevail upon the Mayor to take some steps for the abolition of the "segregated" district, which is said to contain not more than 500 of the 6,000 prostitutes in the city.

Milwaukee.—The last Wisconsin legislature, largely through the efforts of the Episcopal Social Service Commission, enacted the Linley Act, which is substantially the Iowa Injunction Act, providing that any citizen may obtain a permanent injunction against disorderly houses. This Act is now being enforced in Milwaukee by a volunteer society.

Hartford.—The report of the Vice Commission was presented to the Common Council in July. The report is a conservative one and its conclusions do not materially vary from those of several similar commissions.

Philadelphia.—The report of the Vice Commission was presented to the Mayor in April. The report contained in addition to a careful discussion of the whole question sundry appendices in which were given the data upon which the conclusions of the Commission were based, a report on an investigation of foreign conditions, and drafts of certain acts which were presented at the 1913 session of the Pennsylvania legislature, none of which, however, was passed except a mutilated duplicate of the Iowa injunction law.

Denver.—The Morals Committee has submitted a report to the commissioners of the city on licensed cafés and restaurants.

The Bureau of Social Hygiene, founded by John D. Rockefeller, Jr., and endowed by him with $1,000,000, has set itself the task of meeting the needs for full, accurate, dispassionate knowledge of the social evil. In a strictly scientific spirit it has made exhaustive studies of the vice situation in New York and of the efforts of foreign cities in handling the same problems. George J. Kneeland, the director, has already published a report describing conditions in respect to commercialized prostitution in New York. It will be followed in due course by three volumes dealing respectively with "Prostitution in Western Europe," "European Police Systems," and finally "Prostitution in the United States."

The Mann White-Slave Act has been upheld at all points by the Federal Supreme Court in a unanimous opinion. The case involved a woman and a man who had been convicted, the one of enticing, the other of aiding her to entice, a young woman "to go in interstate commerce . . . for the purpose of prostitution." Their counsel appealed to the Supreme Court on the ground that the right of Con-

gress to regulate interstate commerce "is not broad enough to regulate prostitution or any other immorality of citizens of the several states as a condition precedent or subsequent to their right to travel interstate or to aid or to assist another so to travel." The Court declared that interstate commerce includes the transportation of persons. To the contention that persons have a right to move in interstate commerce and that no one can be made guilty of the crime of assisting in the exercise of that right, the Court replied that this contention "urges a right exercised in morality," and that this fallacy vitiates the whole argument against the law. The Court recognized that the states can exercise control over the immoralities of their citizens; but it adds:

> It is a control, however, which can be exercised only within the jurisdiction of the states, but there is a domain which the states cannot reach and over which Congress alone has power; and if such power be exerted to control what the states cannot it is an argument for, not against, its legality.

POLICE

Cleveland.—Frederick Kohler, widely known as Cleveland's "golden-rule chief of police," was dismissed from the service on March 17. The dismissal was the outcome of a trial before the Civil Service Commission on charges of conduct unbecoming an officer and a gentleman, conduct subversive to the good order and discipline of the police department, and gross immorality. The Civil Service Commission in passing sentence took occasion to commend Kohler's official conduct, stating that it regarded Kohler "as a police officer of exceptional intelligence and ability," and called attention to the fact that not even a suspicion of dishonesty or corruption had been held against Kohler or his subordinates. Kohler's successor as chief is W. S. Rowe, who has been connected with the police department of Cleveland for 33 years, and has served as inspector of police since 1903

Pittsburgh and Scranton.—Bureaus of public morals were established by the legislature in cities of the second class in Pennsylvania (Pittsburgh and Scranton) for the purpose of investigating and acting upon all questions and conditions arising from sex relationship which affect public morals. Each bureau is to be governed by a board of seven directors, three of whom may be women, appointed by the mayor of the city for four years and confirmed by the council. The directors are to elect from outside their own body a superintendent, who shall give his entire time to the work of the bureau, and shall receive a salary not exceeding $3,000 per year. The board of directors are given full power to enforce all laws and prosecute all violations of law in matters of sex relationship, and for that purpose they are empowered to exercise such police power as may be necessary. Such policemen and detectives as the board may require and select for its purpose are to be detailed from the regular police and detective forces, subject to the approval of the director of public safety, and during the time that they are so detailed they shall be subject to the orders of the board of directors, exercised through its superintendent, and shall be responsible to the board, and shall receive the regular pay as provided by law. The board of directors may employ such additional investigators as they may deem necessary.

New York.—A similar measure relating to New York City and creating a bureau to deal with gambling and the social evil was passed by the New York legislature but vetoed by Mayor Gaynor. It was urged by a Citizens' Committee appointed after the Rosenthal murder to provide for a "thorough, non-partisan, unsparing examination" into existing police conditions.

The investigations which followed the Rosenthal murder (see *Graft, infra*) resulted in many recommendations for the improvement of police administration. The Citizens' Committee recommended that Sunday liquor selling in saloons within restricted hours and with other proper limitations should be permitted by law; that the Raines law be amended by the repeal of the provisions permitting ten-room hotels; that a board of social welfare be created; and that the appointment of the police commis-

sioner continue in the mayor, that his salary be made $15,000 a year and the term at ten years, and that he be made removable by the appellate division of the Supreme Court. A committee of the legislature headed by Senator Wagner made these recommendations: the amendment of the liquor tax law so as to permit the local authorities of the city to determine whether and under what conditions liquor may be sold on Sunday; the enactment of such legislation as will remove from the police department the responsibility for the enforcement of the laws relating to gambling, disorderly houses and kindred vices; the creation for this purpose of a department of public welfare; and the enactment of such laws as will recognize the principle of home rule, so as to enable the local authorities to enact modifications of the existing laws relating to the organization, administration and control of its police department, without legislative interference. A committee of the Board of Aldermen headed by Alderman Curran recommended home rule and a term of eight years for the police commissioner, to be removable by the Governor, but opposed a department or board of public morals. Besides these legislative proposals, the Curran Committee made a large number of other recommendations on the details of police administration, among them: that accused police officers should be investigated by men outside the department, so as to prevent white-washing through self-investigation; definite instructions should be given policemen so as to prevent neglect of duty or abuse of authority; responsibility for handling complaints should be centralized in officials directly under the supervision of the commissioner; police officers should be held responsible for making accurate and complete reports of vice conditions; reports on complaints should be carefully reviewed so as to prevent inaccurate and misleading statements; policemen in court should be supervised in order that a check may be kept upon the adequate preparation of their cases and the truthfulness of their testimony. The testimony brought out before the committee is summarized in two articles by Clement J. Driscoll in the *National Municipal Review* for April and July, 1913. None of the legislation recommended by these several committees was enacted except the law creating a welfare department vetoed by Mayor Gaynor.

Chicago.—On Dec. 30, 1912, the Chicago City Council passed an ordinance readjusting the police department of the city. The ordinance divides the entire department into two distinct bureaus, each subordinate to the general superintendent of police. The two bureaus created are the active bureau, under the immediate supervision of the first deputy superintendent of police, and the clerical, mechanical and inspection bureau, subject to the supervision of the second deputy superintendent of police. The ordinance provides that the first deputy superintendent of police shall be a member of the police force and have charge of all matters pertaining to the enforcement of the municipal laws and ordinances, the prevention of crime and the apprehension of criminals; he also has control over the assignment and distribution of the police force and the regulation of street traffic. The second deputy superintendent of police according to the ordinance "shall not be a member of the police force." He is charged with the general care, custody and inspection of the property and records of the department, the instruction of the members of the police force and ascertaining and recording their relative efficiency both individual and grouped, and with the receipt and investigation of all complaints of citizens regarding members of the uniformed force. The censoring of moving pictures and public performances of all kinds is placed under the second deputy's supervision as well as "the supervision of the strict enforcement of all laws and ordinances pertaining to all matters affecting public morals." (See also *Graft, infra.*)

Oakland.—Oakland, Cal., has decided to set aside $6,000 for a woman's police bureau in 1914. Of this $1,600 a year will be for the salary of a woman chief and $1,200 each for two assistants. The bureau will have headquarters in the city hall and will coöperate with the chief of police and the

probation officer, but will be responsible directly to the commissioners of public health and safety. The department will be officially known as the women's and children's police bureau. Its functions will be to police public dance halls and escort women called to police courts as witnesses, defendants and complainants.

Policewomen.—The number of policewomen has been materially increased during the year. Philadelphia and Chicago are among the larger cities now employing female police officers.

Police School in Philadelphia.—Philadelphia has developed in the new police school one more idea for increasing the intelligence and efficiency of the police department. Courses have been arranged for all branches of police duty. They will include military and police drills, setting-up exercises and other physical training, instruction in first aid to the injured, advice as to the handling of prisoners, special talks on legal points with reference to the city ordinances, and other matters of technical importance.

International Association of Police.—At the Washington meeting of this body in June, the chief of police of Atlanta, Georgia, advocated the elimination of the social evil in this country. He told of the cleaning up of the segregated district of Atlanta eight months before, and declared that since it had been cleaned up there had been less crime in that city. Most of the police-department heads favored the segregated district, as opposed to an attempt at total suppression. Chief Peterson, Oakland, Cal., declared that the granting of suffrage to women had added a complicating element to the social evil question in California. "The women, with their diversified opinions, their sentimentalism and their desire to shine socially, have seriously handicapped the work in the city which I represent," he declared. "The women are actuated by the best motives and they are sincere to the very bottom of their hearts, but they lack the ability to look at conditions in the light which men do and which they should. The women are in favor of immediate and absolute elimination, and that is where the trouble lies."

In the opinion of Major Richard Sylvester, the president of the Association, the coöperation of police authorities with the general government looking to the breaking up of the white-slave traffic, the utilization of the automobile in the police service, and the progress made in the signal service systems for police work, were the most important developments during the year.

GRAFT

New York.—The murder of Rosenthal and the indictment of Lieutenant Becker of the New York police force (*A. Y. B.*, 1912, p. 215) resulted in an aldermanic investigation of the police, a "John Doe" investigation by District Attorney Whitman of New York County, an investigation by a citizens' committee, and an inquiry by a committee of the legislature (see *Police, supra*). Aside from the conviction of Lieutenant Becker and the gunmen, who are now awaiting the result of an appeal, the most effective work of the District Attorney has been done in Harlem, the section of Manhattan Island above 106th Street to the Harlem River, considered one of the best business and residence portions of the city. Captain Walsh, who had been in command of the 126th Street Station since April, 1907, made a complete confession, implicating Dennis Sweeney, James E. Hussey, James F. Thompson and John J. Murtha, in turn inspectors in the Harlem district. These men were convicted on April 29 on a charge of conspiracy to buy the silence of a resort keeper; they await trial on the more serious graft charges. The testimony of Captain Walsh cleared up the mathematics of the graft situation in Harlem: "I collected from saloons, gambling places and disorderly hotels. Fifteen to 20 per cent. went to Eugene Fox, a patrolman who collected for me. The rest I divided with Inspectors Thompson, Hussey, Murtha and Sweeney as they took charge of the district in turn." It is estimated that by this system $500,000 was mulcted annually from Harlem.

In the same Harlem net the District

Attorney caught James F. Robinson, for years Inspector Sweeney's most trusted graft collector, getting for him a six to ten year term in Sing Sing; George A. Sipp, former proprietor of a Raines law hotel in Harlem, who made a full confession after a conspiracy had been defeated to spirit him out of the court's jurisdiction; Patrolman John J. Hartigan, convicted of perjury in swearing falsely for the system either through a feeling of loyalty or, as is suspected, for a cash consideration; Edward J. Newell, Sipp's former lawyer, who pleaded guilty to the charge of willfully persuading a Grand Jury witness to remain out of the jurisdiction; and a number of minor police officials. In his prosecutions, District Attorney Whitman was assisted by several women who had run disorderly resorts in the city for years. Their apparently truthful evidence concerning the amount of money the police had wrung from them was even more shocking than the revelations of the Becker trial. The District Attorney declares that he has just begun to fight, his objective point being the head of the "system" at headquarters. At the close of the year he was engaged in investigating the alleged protection of wiretappers and poolroom operators.

Chicago.—In Chicago the air has been filled with charges of bribery and various forms of political corruption and graft, but no such developments have resulted as in New York. The activities of the organization known as the "United Police" were investigated by the Civil Service Commission, beginning in the latter part of December, 1912. On Jan. 21, the Commission reported that the United Police had raised a "slush" fund of $60,000 for the purpose of bribing the state legislature and City Council, but had failed in its purpose. The discredited organization thereupon disbanded and the commission issued a strong recommendation against permitting the formation of similar organizations in the future.

Mrs. Ella Flagg Young precipitated a most interesting situation by her resignation as Superintendent of Schools. There had been a strenuous attempt to coerce her into recommending certain textbooks without publishing for bids, and without considering other publications. She refused to be coerced and put the responsibility directly on the Board of Education.

There were a number of convictions on the charges of graft made against the building inspectors (*A. Y. B.*, 1912, p. 216) and against smoke inspectors.

Philadelphia.—Henry Clay, Director of Public Safety for four years ending December, 1911, and John R. Wiggins and Willard H. Wall, heads of the Wiggins Construction Co., building contractors, were convicted of conspiracy to defraud the city of Philadelphia in the alteration and erection of public buildings. On April 2 they were sentenced to serve not less than 18 months nor more than two years in the penitentiary and to pay a fine of $500 each. Suits have been begun by the city against the Wiggins Construction Co. to compel it to refund $150,000 which it is alleged to have fraudulently collected from the city.

Atlantic City.—Of the nine councilmen involved in the attempted million dollar concrete boardwalk swindle, three were acquitted, four confessed their guilt, and two were convicted in December, 1912, and sentenced to terms in the penitentiary ranging from one to three years. The sentences included fines of $1,000 and costs on each defendant.

Clinton, Iowa.—Thirty-one indictments were returned against three county officials and three contractors and supply men, sharers in graft in the construction of bridges and other county work. As a result of the exposures, two supervisors were forced to resign and $23,000 has been refunded to the county.

Gary, Ind.—Harry Moose, former city clerk, whose disappearance in the Spring of 1912 brought the bribery cases against Mayor Thomas E. Knotts, certain aldermen and former city officials of Gary to a sudden conclusion, returned in November, 1912, and was convicted and sentenced to a prison term. As a consequence of this trial an investigation of the official doings of Mayor Knotts was begun by the state Board of Accounts. The board reported to Governor Ral-

ston serious shortages of Knotts, making him liable to criminal prosecution. The specific charge of the board is the illegal retention of fees, fines and other moneys by Knotts acting in the capacity of police judge at the same time that he was drawing a salary of $1,500 as mayor.

Other Cities.—In the other large cities of the country graft developments have not been serious although rumors and charges have been plentiful. Charges of receiving double pay have been made in Milwaukee and Des Moines, but without any serious developments. In Atlanta the smoke commission has investigated serious charges of bribery against the "smokeless" furnace interests alleged to be seeking special privileges. In Cleveland the padding of city payrolls has been charged. Columbus has investigated alleged graft in connection with city contracts for asphalt pavements. Dayton acquired much newspaper advertising through a Burns investigation with dictograph accompaniment and grand-jury probe. Denver has led the list with grand-jury indictments of city officials and corporation heads, but there has been thus far a lack of developments promised by the initial proceedings. In East St. Louis charges were made by M. M. Stephens, former mayor and member of the City Protective Association, that the lawless element paid $3,000 to $5,000 a month for protection and that an assessment of $15,000 for a campaign fund was levied on the "bad lands." Providence has wrestled with the question of graft in its highway department. San Francisco has brought to light but one case of embezzlement, due to faults in the check system recently put into effect in the city administration. Seattle has discovered corroborative evidence tending to show that, as suspected by the Council, the city has been regularly swindled under the garbage-collection contract. St. Louis has indulged in charges of grafting against workhouse officials and the plumbing department, with counter charges of "frame-up" on the part of the accused, all without definite result so far.

NUISANCES

SMOKE

New York.—The Department of Health brought suit during the year against the New York Edison Co. in the Court of Special Sessions for an infraction of that section of the sanitary code which provides that "no person shall cause, suffer, or allow dense smoke to be discharged from any building, vessel, stationary or locomotive engine, or motor vehicle, place or premises within the city of New York." In July a decision was rendered by the court that the ordinance was unconstitutional. The Department of Health will make an appeal from this decision at the earliest possible moment, so that this decision cannot be considered as final.

Jersey City.—In Erie Railway Co. *v.* Mayor, etc., of Jersey City (84 Atl. Rep. 697), the court declared it to be a "fundamental proposition that the chartered right of a railroad to operate its line included the right to make such noise, smoke, and smells as are really unavoidable in the proper and careful conduct of its business, even if some injury to health or some damage to property be caused thereby." On this ground the court held a smoke-prevention ordinance of Jersey City invalid and held further that a finding that more smoke was actually emitted than was necessary did not cure the defect. The court, however, on the same day sustained a conviction of the Erie Railroad Co. under a state statute for maintaining a public nuisance in "emitting divers noisesome, unwholesome and dense smoke and vapors from its engines and roundhouse, in greater quantities than were required for the legitimate and proper use and operation of its railroad." In the latter case the court strongly intimates that even the constitutional right to use soft coal cannot be pushed to excess:

> We find nothing in the charters of the constituent companies of the defendant which concedes to it the absolute right of burning soft coal *ad libitum* regardless of the public right, and in the absence of such a concession we must assume that while the legislature granted to the defendant the right to operate a railroad, this right carried with it no

grant of power to commit a nuisance. (State *v.* Erie Railway Co., 138 N. W. Rep. 45.)

Pittsburgh.—The work that is being done at the University of Pittsburgh and by the Federal Government relative to smoke abatement is of interest and value (*A. Y. B.*, 1912, p. 218). The University has published a bibliography of smoke and smoke prevention with 164 pages of references. Another recent publication entitled "The Smoke Nuisance, A Question of Conservation," states that the amount provided for the investigation made by the University was $40,000. The work is being done by the Mellon Institute, which is the department of industrial research of the University.

Cleveland.—Considerable experimental work has been done by large manufacturing companies in Cleveland, some of which was initiated by the city smoke department, with which it is keeping in touch. The American Steel & Wire Co. is making elaborate and extensive experiments on a commercial scale with different types of furnaces for metallurgical processes, and two other companies have recently stated that they are prepared to make investigations suggested by the smoke inspector. Such experiments do not refer to boiler plants, but considerable experimental work has recently been done in connection with boiler plants by the smoke prevention committee of the Chamber of Commerce, the Cleveland Engineering Society and others.

Cincinnati.—Cincinnati is setting a worthy example in a successful crusade against the smoke nuisance. In 1900 a group of public spirited men and women organized the Smoke Abatement League and for seven years this organization has followed a consistent policy of education. A most important result of the work of this organization has been the passage of a new smoke ordinance by the Council, which prescribes that "the chief smoke inspector shall be qualified by training and experience in the theory and practice of the construction of boilers and furnaces, proper combustion of fuel and the theory and practice of smoke abatement." Under a civil service examination a new inspector was appointed and has been for some months in charge of the city smoke department. This is in sharp contrast to the general custom that prevails of appointing as inspectors men not qualified for the educational work of the position, but overimpressed with the idea that their principal function is that of a police officer and the best test of their efficiency the number of arrests they can make, whether convictions follow or not and whether or not the offender has been instructed as to the correct method of handling his furnace and boiler. As soon as the new inspector was installed the policy of his department became one of help and advice. In the future, plans for the installing of furnaces and boilers will be referred to his office, the result of which, it is predicted, will be that no more smoking plants will be constructed.

Indianapolis.—A study was made by the Indiana State Board of Health to determine the amount of soot which fell in Indianapolis with the snow in the course of 24 hours in March. The samples were collected from the business district, including the Union Station, from residential districts and from the vicinity of the City Hospital. The railroads were found to be the greatest offenders and the deposition of soot near the tracks averaged 47 lb. per acre per day as compared with the average in the entire district of 10.28 lb.

Chicago.—The Association of Commerce special committee on the smoke problem is studying three questions: first, the extent of air pollution by steam locomotives; second, the mechanical feasibility of complete electrification; and third, the financial practicability of complete electrification. Tentative reports on the progress of the work have been presented from time to time during the year. It is expected that the complete report will be published early in 1914. W. F. M. Goss, of the University of Illinois, is in charge of the investigation, *vice* Horace G. Burt, deceased.

California. — A pamphlet entitled "The Smoke Problems of California" has been published by the Commonwealth Club of California. It represents a very careful investigation of

the whole question in a number of towns and includes articles on the conservation of the purity of the air, the sanitary and medical phases of the question, the matter of legal redress, and the effects of smoke on vegetation.

BILLBOARDS

New York.—The report prepared by the Commissioner of Accounts on "Billboard Advertising in New York City" and issued early in the year is a comprehensive discussion of the extent of billboard advertising in New York, its legal control, and the extent to which it violates existing laws. It also contains an argument regarding the necessity for regulation and a discussion of the decisions of courts and the methods of regulation and control of billboard advertising in American and foreign cities. It concludes with a tentative suggestion for a new ordinance in New York.

The Commissioner found that there were 4,600 billboards in Manhattan, with an aggregate advertising space of 3,800,000 sq. ft., yielding an income of more than $1,000,000 a year. He recommended limiting billboards to seven feet, with exception when the entire construction is of metal. Mayor Gaynor appointed a committee of seven to make an investigation of the use of billboards, sky-signs, and similar advertising devices. The members of the commission are Robert Grier Cooke, chairman, Henry W. Sackett, Reginald Pelham Bolton, Edmund B. Wells, Ingalls Kimball, Albert S. Bard, and Walter Stabler. They have examined experts in advertising and members of the companies who control the billboards and made a study of the regulations relating to the use of advertising boards in European countries as well as in many states and cities in this country. This commission presented its report in September. It is generally regarded as the most comprehensive that has so far been published. It makes a number of recommendations, among others one to the effect that constitutional amendments should be passed giving to municipalities power to regulate billboards effectively.

St. Louis.—The Supreme Court of the United States has dismissed the suit in which the Gunning System attacked the validity of the St. Louis billboard ordinance prohibiting the maintenance of billboards more than 14 ft. high or nearer than 15 ft. to the building line. This action was taken as the result of an agreement between the city and the company.

Milwaukee.—The city has lost its fight against the billboard nuisance, the court rendering a decision in favor of the posting company in a suit brought by the city, alleging a violation of the city ordinance applying to billboards. The court said that under its fullest authority the city can regulate and control the construction of billboards only in so far as to protect the health and safety of the citizen, but it cannot for æsthetic purposes deprive lot owners of the right to cover the entire space of ground with billboards if they wish, or compel them to have open spaces at both ends of the billboards in addition to the opening at the bottom.

Albany.—The Board of Aldermen passed an ordinance in June taxing all billboards five cents a square foot per year for display advertising. The ordinance became effective Sept. 1. A permit from the mayor which will carry a tax with it, will be required, which may be revoked if matter is displayed which is deemed "offensive to decency." Permits will cover a period of one year.

Chicago.—The City Council two and a half years ago passed a billboard ordinance, which was much in advance over previous ordinances, notably in prohibiting the erection of billboards on roofs of buildings and requiring frontage consents where half the buildings in a street are required for residence purposes, and regulating the manner of construction. The billboard companies have not contested the ordinance and have nominally observed its restrictions, although the requirements for license fees have not been enforced. The Municipal Art Committee of the City Club has been recently engaged in investigating the practice of the building department of the city in granting permits for billboards. It has found that there has been no efficient verification of the genuineness of signatures, nor the amount of frontage signed up in

residence districts. It had directed the attention of the building department to numerous violations, and drafted a communication suggesting requirements and a routine of action which will necessitate the verification of frontage consent petitions. The two bodies mentioned are planning for such investigation and follow-up work as will more strictly enforce the terms of the existing ordinance, and probably reduce the number of billboards. (See "Billboard and American Forms of Outdoor Advertising," *City Club Bulletin*, Dec. 16, 1912.)

Hartford.—About three years ago there was formed in Hartford a society known as "The United Associations Committee for Billboard Regulation." Information was sought in cities throughout the country and the good features as they appeared selected, and in turn adapted to fit the requirements of Hartford. The committee was enabled to present an ordinance which was adopted with practically no change. The organization is now agitating the question of regulating sheet-iron, electric and other signs that are a danger to property, or a menace to life.

Bristol, R. I.—The assessors have decided to levy a tax on every board which bears an advertisement.

Great Britain.—A bill has been introduced into Parliament to amend and extend the Advertisements Regulation Act, 1907. The amendment of the Act is justified by the difficulty which has been experienced in determining its proper construction and the precise limits of the powers of local authorities under it. The extension is justified alike by the narrow limitations of the Act, and by the steady growth of opinion on the subject among the municipalities.

The bill proposes that the exhibition of all advertisements on land or buildings shall be subject to regulations, while power is given to prohibit those which do not relate to the land on which they are exhibited. Advertisements exhibited by public authorities, and those within buildings, are exempt. Temporary exemption must also be given to advertisements already exhibited when the by-laws come into operation, and also, to some extent, to those exhibited on certain hoardings. Local authorities, in exercising the concurrent powers of regulation and prohibition, may be expected to be controlled by the general opinions of their rate-payers; and it is obviously desirable that, if they determine to prohibit at all, they should not be compelled to prohibit throughout the whole of their district, in all parts of which the same conditions may not obtain. It is proposed, therefore, that they may deal with parts of their district differentially, so that they may prohibit "alien" advertisements in rural and residential areas, and regulate those in the business parts.

NOISE

Baltimore.—Noise is receiving more attention at the hands of municipal legislators and societies than formerly. An effort to suppress unnecessary noise is being made in Baltimore. The committee having the matter in charge is seeking the aid of the Federation of Labor and particularly of the night trades, which have been active in the anti-noise crusades in Massachusetts. A nine year old girl has called the committee's attention to the fact that children go to school without being called by bell or whistle, and it is argued that grown men should be able to do without such a summons. An elaborate report on the whole question of noise has been published by the Anti-Noise Committee of the Baltimore City Medical Society, in the bulletin of the Society.

New York.—An anti-noise ordinance for New York City has been signed by the mayor and is now effective. The ordinance provides that no peddler, vender or huckster who plies a trade or calling of whatsoever nature on the streets and thoroughfares of New York shall blow or use any horn or other instrument, nor make any improper noise tending to disturb the peace and quiet of a neighborhood for the purpose of directing attention to his wares, trade or calling, under a penalty of not more than $5 for each offense. Chicago is also about to adopt a similar ordinance, as is Duluth, Minn.

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Boston, Mass., *Monthly Bulletin;* issued by the statistics department.

Baltimore, Md., *Municipal Journal,* semi-monthly.

Burlington, Iowa, *Proceedings of the City Council under the Commission Plan of Government,* monthly.

Centralia, Wash., *Monthly Summary Proceedings,* with itemized statement in detail of the receipts and expenditures of the city commission.

Chattanooga, Tenn., *Municipal Record,* monthly.

Colorado Springs, Col., *Summary of Proceedings and Department Reports,* monthly.

Denver, Colo., *The City of Denver,* issued semi-monthly by the city and county of Denver; successor to *Denver Municipal Facts.*

Houston, Tex., *Progressive Houston,* monthly.

Jackson, Miss., *Commission Government Record,* quarterly.

Lexington, Ky., *The City of Lexington.*

Los Angeles, Cal., *Los Angeles Municipal News,* published weekly by the municipal newspaper commission from April 17, 1912, to April 9, 1913 (see *infra*).

Memphis, Tenn., *Commission Government.*

Minneapolis, Minn., *Municipal Statistics,* monthly.

New York, N. Y., *The City Record,* daily.

Omaha, Neb., *Municipal Statistics,* monthly.

Philadelphia, Pa., *Philadelphia,* monthly, now discontinued.

San Francisco, Cal., *Municipal Record,* weekly.

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Seattle, Wash., *Municipal News.*

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The *Los Angeles Municipal News* (*R. Y. B.*, 1912, 286), which was the first municipal weekly newspaper, discontinued publication on April 9, 1913. This action was determined upon by the municipal newspaper commission in deference to the popular vote in the Spring election on charter amendment No. 14, which read: "Shall proposed charter amendment number fourteen, providing that the City Council shall not appropriate or provide any public money for the printing, publication, sale or distribution of a municipal newspaper, be ratified?" The vote on this amendment stood 24,089 for, and 15,788 against. The vote that created the municipal newspaper at the general election of Dec. 10, 1911, was 58,143 for, and 43,987 against. Many held that the amendment did not affect the department at all, and that the publication of the municipal newspaper could continue until the initiative ordinance creating the municipal newspaper should be repealed by a vote of the people, or at least until the appropriation made at the beginning of the fiscal year was exhausted. Without entering into this conflict of opinions the commission, one member dissenting, construed the vote on the amendment to be a popular command against further publication of a municipal newspaper.

STATISTICS OF CITIES OF 50,000 POPULATION OR OVER

The figures in the following table, courteously supplied by the treasurers or comptrollers of the various cities, are the latest available. They relate in general to the fiscal year ending in 1913; in the case of cities whose fiscal year coincides with the calendar year, the figures are for the year ending December 31, 1912.

	Population, 1910	Assessed Value of Property, thousands	Tax Rate per $1,000	Bonded Indebtedness	Sinking Fund or Surplus	Total Receipts	Total Expenditures
Akron, Ohio	69,067	$93,967	$12.40	$4,393,619	$33,345	$4,512,418	$4,337,126
Albany, N. Y.	100,253	102,365	21.60	5,433,555	1,332,693	3,963,883	4,496,554
Allentown, Pa.	51,913	45,529	6.40	489,200	57,982	492,633	440,090
Altoona, Pa.	52,127	25,200	25.00	2,031,000	332,098	.....	.....
Atlanta, Ga.	154,839	170,000	12.50	6,202,500	1,189,000	4,786,125	4,053,317
Baltimore, Md.	558,485	741,909	20.10	71,294,382	25,042,924	20,707,673	19,898,866
Bayonne, N. J.	55,545	55,432	20.89	.....	682,945	.....	.....
Birmingham, Ala.	132,685	82,000	10.00	5,863,700	.....	.....	.....
Boston, Mass.	670,585	1,481,819	16.40	118,362,647	43,733,392	39,420,900	38,355,250
Bridgeport, Conn.	102,054	105,965	16.50	2,313,400	621,706	1,994,521	2,012,398
Brockton, Mass.	56,878	49,572	19.70	3,566,800	619,391	.....	.....
Buffalo, N. Y.	423,715	325,489	24.095	30,977,109	3,572,489	17,064,092	16,199,172
Cambridge, Mass.	104,839	115,947	20.40	11,607,100	4,161,688	4,690,180	4,599,846
Camden, N. J.	94,538	56,662	20.00	5,158,950	109,758	2,601,878	2,508,839
Canton, Ohio	50,217	60,429	12.30	2,266,472	161,062	1,054,377	925,757
Charleston, S. C.	58,833	19,742	25.25	4,148,500	16,451	783,263	745,159
Chicago, Ill.	2,185,283	940,450	47.10	29,782,400	3,433,616	54,248,546	56,339,734
Cincinnati, Ohio	363,591	525,826	14.84	60,261,066	9,024,228	5,870,519	5,960,843
Cleveland, Ohio	560,663	765,754	13.60	39,471,886	1,828,363	17,505,522	14,015,627
Columbus, Ohio	181,511	247,576	13.40	17,583,100	3,521,186	.....	.....
Covington, Ky.	53,270	25,809	25.90	2,179,400	.....	.....	.....
Dallas, Texas	92,104	94,646	19.20	5,361,750	565,138	3,715,219	3,259,004
Dayton, Ohio	116,577	150,005	12.80	6,483,956	294,611	.....	.....
Denver, Colo.	213,381	133,987	16.20	1,462,900	641,860	2,770,120	2,635,909
Des Moines, Ia.	86,368	21,971	89.00	1,563,500	100,587	1,086,057	1,138,872
Detroit, Mich.	465,766	456,816	19.93	9,787,000	3,379,100	16,531,559	16,391,030
Duluth, Minn.	78,466	61,038	35.30	5,721,000	38,600	1,065,750	1,052,768
East St. Louis, Ill.	58,547	13,301	73.50	712,500	.....	.....	.....
Elizabeth, N. J.	73,409	64,732	18.00	3,462,975	440,103	2,155,764	2,239,485
Erie, Pa.	66,525	26,527	13.00	838,800	488,679	.....	.....
Evansville, Ind.	69,647	38,293	13.20	1,663,300	20,000	815,462	824,025
Fall River, Mass.	119,295	97,725	19.40	7,361,750	2,666,173	4,109,316	3,905,169
Fort Wayne, Ind.	63,933	36,000	11.20	560,800	151,493	528,260	486,363
Fort Worth, Tex.	73,312	62,451	19.30	5,276,000	288,286	1,272,385	2,063,294
G'd Rapids, Mich.	112,571	102,293	21.412	4,459,200	295,877	4,029,123	3,976,630
Harrisburg, Pa.	64,186	50,000	9.50	1,882,000	264,049	1,106,240	1,063,202
Hartford, Conn.	98,915	156,189	21.50	5,258,481	1,216,627	2,686,467	2,665,352
Hoboken, N. J.	70,324	68,503	.....	3,062,632	528,220	.....	.....
Holyoke, Mass.	57,730	57,930	16.00	3,266,500	554,330	.....	.....
Houston, Texas	78,800	96,273	15.00	8,495,000	428,708	2,169 611	1,944,528
Indianapolis, Ind.	233,650	218,027	21.80	3,372,500	112,248	2,486,206	2,478,359
Jacksonville, Fla.	57,699	58,130	11.50	2,118,000	15,400	2,715,665	2,540,007

STATISTICS OF CITIES OF 50,000 POPULATION OR OVER—*Continued*

	Population, 1910	Assessed Value of Property, thousands	Tax Rate per $1,000	Bonded Indebtedness	Sinking Fund or Surplus	Total Receipts	Total Expenditures
Jersey City, N. J.	267,779	257,640	22.00	.....	4,360,439	.....	.....
Johnstown, Pa.	55,482	47,423	4.50	586,000	282,296	422,285	321,356
Kansas City, Kan.	82,331	90,367	6.76	2,393,490	379,220	3,056,089	2,878,554
Kansas City, Mo.	248,381	177,845	12.50	6,121,000	1,113,206	8,554,179	9,058,273
Lawrence, Mass.	85,892	75,449	17.60	2,867,400	266,304	1,897,896	1,740,364
Los Angeles, Cal.	319,198	481,483	16.00	36,218,625	3,114,061	14,042,885	19,855,073
Louisville, Ky.	223,928	197,500	17.60	11,587,200	1,387,783	4,186,949	4,490,283
Lowell, Mass.	106,294	84,694	19.00	2,504,777	468,964	.....	.....
Lynn, Mass.	89,336	81,529	19.40	4,665,100	1,251,684	4,335,439	4,394,078
Manchester, N. H.	70,063	71,697	15.20	1,829,000	739,192	2,018,780	2,030,150
Memphis, Tenn.	131,105	110,519	15.80	4,930,000	.....	.....	.....
Milwaukee, Wis.	353,857	460,548	15.88	9,289,750	914,100	13,150,862	13,011,950
Minneapolis, Minn.	301,408	213,398	32.19	18,839,900	4,323,003	10,031,485	10,047,590
Mobile, Ala.	51,521	33,032	11.00	3,948,500	.....	.....	.....
Nashville, Tenn.	110,364	77,161	15.00	6,113,204	212,533	2,086,142	2,464,923
Newark, N. J.	347,460	383,864	20.40	29,685,200	8,175,145	9,345,236	9,343,640
NewBedford, Mass.	96,652	101,562	19.30	9,393,000	1,925,565	.....	.....
New Haven, Conn	133,605	139,779	17.50	3,626,500	11,854	3,083,109	3,061,862
New Orleans, La.	339,075	245,458	22.00	38,400,517	.....	7,560,551	7,560,551
New York, N. Y.	4,766,883	8,204,862	18.10 to 19.20	1,164,440,884	299,179,241	631,568,077	630,081,004
Norfolk, Va.	67,452	67,206	16.50	9,228,084	1,111,401	.....	.....
Oakland, Cal.	150,174	144,991	29.70	5,584,155	None	5,343,699	4,793,960
OklahomaC'y, Okla.	64,205	72,171	8.50	3,718,500	300,000	1,100,380	[1]760,212
Omaha, Neb.	124,096	32,846	64.80	6,120,000	.....	.....	.....
Passaic, N. J.	54,773	42,859	17.50	1,842,750	148,975	1,812,711	1,936,086
Paterson, N. J.	125,600	101,993	16.60	4,616,500	879,832	7,005,257	6,990,144
Pawtucket, R. I.	51,622	53,741	16.50	5,864,000	1,460,134	2,632,992	2,601,292
Peoria, Ill.	66,950	22,084	59.50	537,000	47,000	1,120,907	1,094,648
Philadelphia, Pa.	1,549,008	1,556,323	15.00	112,730,350	16,273,665	49,052,010	53,071,600
Pittsburgh, Pa.	533,905	758,366	13.40	32,903,435	2,648,313	27,072,784	18,144,909
Portland, Me.	58,571	67,093	21.20	2,955,166	.....	.....	.....
Portland, Ore.	207,214	308,975	7.70	25,599,763	1,973,073	.....	.....
Providence, R. I.	224,326	334,769	16.50	18,505,000	8,770,761	8,177,721	8,090,194
Reading, Pa.	96,071	56,243	10.00	1,686,000	243,887	721,280	654,322
Richmond, Va.	127,628	148,768	14.00	12,010,958	2,883,560	4,587,868	4,303,516
Rochester, N. Y.	218,149	188,809	19.515	17,169,600	1,238,762	8,815,885	8,490,804
Saginaw, Mich.	50,510	37,777	17.74	2,162,570	102,889	1,372,577	1,337,080
Salt Lake C'y, Ut.	92,777	66,400	38.65	4,370,000	12,192	1,681,267	1,553,734
San Antonio, Tex.	96,614	92,332	11.60	2,574,500	556,145	.....	.....
San Francisco, Cal.	416,912	623,844	22.42	33,836,500	673,858	29,086,909	27,785,215
Savannah, Ga.	65,064	51,441	13.90	2,616,000	None	1,339,752	1,317,960
Schenectady, N. Y.	72,826	53,754	23.30	4,272,852	783,264	2,623,101	2,682,731
Scranton, Pa.	129,867	81,555	[2]7.30	1,665,500	440,625	.....	.....
Seattle, Wash.	237,194	212,929	34.57	15,297,380	None	16,795,100	17,161,850
Somerville, Mass.	77,236	64,916	18.80	1,674,000	None	3,088,455	3,198,784
South Bend, Ind.	53,684	28,290	12.90	459,500	9,578	769,025	711,938
Spokane, Wash.	104,402	89,779	13.00	4,760,000	124,371	4,584,924	4,875,427
Springfield, Ill.	51,678	17,677	53.10	754,700	290,545	370,230	353,265
Springfield, Mass.	88,926	149,530	15.50	4,404,500	874,880	.....	.....
St. Joseph, Mo.	77,403	39,536	13.00	972,350	18,876	677,000	647,000
St. Louis, Mo.	687,029	601,301	22.20	23,806,690	1,936,258	15,151,874	14,167,821
St. Paul, Minn.	214,744	133,459	28.20	10,126,000	359,937	8,319,512	7,479,141
Syracuse, N. Y.	137,249	136,992	16.24	9,966,706	75,847	6,886,839	6,692,148
Tacoma, Wash.	83,743	73,298	12.00	11,449,585	222,370	8,019,705	9,072,996
Terre Haute, Ind.	58,157	35,047	11.50	592,000	41,937	.....	.....
Toledo, Ohio.	168,497	223,939	14.00	9,672,244	2,001,661	4,595,635	4,685,661
Trenton, N. J.	96,815	74,204	21.00	7,521,493	2,006,088	.....	.....
Troy, N. Y.	76,813	59,030	22.82	4,494,892	167,857	3,062,643	3,399,189
Utica, N. Y.	74,419	44,565	22.34	2,134,493	336,361	3,154,372	3,042,724
Washington, D. C.	331,069	330,332	15.00	7,610,850	None	14,700,637	14,661,805
Waterbury, Conn.	73,141	67,900	15.99	3,087,000	89,008	.....	.....
Wichita, Kan.	52,450	64,665	19.20	1,852,020	None	577,725	538,470
Wilmington, Del.	87,411	55,453	15.30	3,790,350	.....	.....	.....
Wilkes-Barre, Pa.	67,105	57,768	7.00	1,286,400	167,643	671,151	654,247
Worcester, Mass.	145,986	153,058	17.20	12,076,625	4,790,615	.....	.....
Yonkers, N. Y.	79,803	76,984	28.99	8,173,921	282,145	6,014,564	6,022,058
Youngstown, Ohio.	79,066	139,084	11.20	2,823,341	150,045	2,436,375	1,782,490

[1] Does not include cost of operating city schools.

[2] First class property; second class, 4,687; third class, 2,515.

VIII. TERRITORIES AND DEPENDENCIES

FRANK MCINTYRE

ALASKA

Economic Conditions. — Economic conditions in Alaska have not materially changed. No important development may be expected until provision is made for the development of the coal and natural resources of the territory and for the construction of railroads and trails. Both of these subjects are receiving the consideration of the executive department, as well as of Congress, and the outlook for some action is now brighter than it has been at any time in the past.

Government.—On May 1, John F. A. Strong, of Juneau, was appointed Governor of Alaska to succeed Walter F. Clark. The first session of the Alaska legislature convened on March 3 at Juneau. During the 60-days' session considerable progressive legislation was enacted. Eighty-four laws were passed, the first being to extend the elective franchise to such women in the territory as had the qualifications required of male citizens. The Governor of Alaska reports that the work of the legislature was such as amply to demonstrate that the people of Alaska are fully capable of governing themselves.

Education.—Six new schools for white children were established during the year, there now being 26 schools for white children, employing 37 teachers, with a total enrollment of 943 pupils. A law for compulsory education of children between eight and 16 years was passed by the legislature.

Health.—During the year special attention was given to the health of the natives. It is proposed to establish a chain of small hospitals along the coast. The principal disease is tuberculosis, of which all forms are present. There were no serious outbreaks of epidemics during the year. Mild cases of measles and diphtheria were reported at a few places, and an epidemic of scarlet fever was confined to one town. Two cases of smallpox occurred on Kodiak Island.

Railroads.—The report of the Alaska Railways Commission, appointed by Act of Congress approved Aug. 24, 1912, to make a general report on the transportation question in Alaska, with special reference to the possible railroad routes from the seaboard to the coal fields and the interior, was submitted to Congress by President Taft with a special message on Feb. 6. The Commission found that railway connections with open ports on the Pacific are imperative if the fertile regions of inland Alaska and its mineral resources are to be utilized. The report describes all of the practicable railway routes for reaching the interior and the ocean terminals. The result of a comparison of the proposed routes is thus summarized in President Taft's message:

> Railroad development in Alaska should proceed first by means of two independent railroad systems, hereafter to be connected and supplemented as may be justified by future development. One of these lines should connect the valley of the Yukon and its tributary, the Tanana, with tidewater; and the other should be devoted to the development and needs of the Kuskokwim and the Susitna.

The railways recommended constitute two independent systems of a total of 733 miles of new construction at an estimated cost of $35,000,000. The Commission and President Taft recommended the construction and ownership of the roads by the Government, President Taft saying:

> I am very much opposed to government operation, but I believe that gov-

ernment ownership with private operation under lease is the proper solution of the difficulties here presented.

Bills embodying the recommendations of the Commission have been debated in both houses of Congress. The legislation is strongly urged by the Governor in his annual report and by the President in his annual message. (See also XXIII, *Civil Engineering.*)

Roads.—The report of the Alaskan Railways Commission laid great stress upon the necessity, as supplementing railroads, of wagon road and trail construction. The work of building wagon roads and trails has been carried on during the year by the Alaskan Road Commission, which reports a total mileage up to June 30, 1913, as follows: wagon road, 862 miles; sled road, 617 miles; trail, 2,166 miles.

Industries.—The mineral output in 1912 was valued at $22,537,821, as compared with $20,650,000 in 1911. The decrease in the output of gold is due, in part, to the exhaustion of placer areas and, in part, to a dry Spring and Summer unparalleled in the history of mining in those regions. A few new placer gold discoveries were made during the year. The supply of coal is unlimited, but the coal fields being still withheld from development, the people have been compelled to import coal for domestic fuel and for industrial purposes from foreign countries, largely from British Columbia and not infrequently from Japan and Australia, the amount of such importation being 102,169 tons, valued at $492,301.

The fisheries of Alaska are one of its most valuable commercial and industrial assets, the output being second only to the production of gold and other metals. Statistics for 1912 show that there were 24,263 persons engaged in this industry, an increase of 6,331 over the number of persons so engaged in 1911. The total investments in fisheries in 1912, exclusive of the off-shore cod and halibut fisheries, was $35,239,016, as compared with $22.671,387 in 1911, of which nearly 90 per cent. was in the salmon-canning business. The total of fur shipments in 1912 aggregated $794,-156.63. A recent census of the seal herd showed that there were 215,940 seals of all classes. The number of skins shipped was 3,764, the proceeds amounting to $130,640.57.

It is estimated that the total number of natives affected by the reindeer industry is 6,500, and that the total value of all the reindeer herds of Alaska is $1,162,060. Reports show a total of 38,476 reindeer in 1912, an increase of 4,747 over the number in 1911. Agricultural development is promising, but awaits the building of railroads and wagon roads and the consequent reduction of the cost of transportation.

Commerce.—The volume of merchandise shipments, including precious metals and copper, between Alaska and the United States and between the territory and foreign countries in the fiscal year 1913 was the largest in the history of the territory, amounting to $67,150,519. The greatest advance noted in the shipments from Alaska was in salmon, where there was an increase of $2,875,791. Increased shipments to Alaska are noted in the items of coal, lumber, hardware and provisions.

The exportation of Alaskan products to the United States for the last three fiscal years has been as follows:

	1911 $	1912 $	1913 $
Gold.....	15,081,620	17,156,989	14,576,015
Fish and fish products...	11,175,712	14,300,240	17,202,287
All other merchandise...	2,638,112	7,297,472	5,934,971

GUAM

Economic Condition.—The commander of the naval station, who is the Governor, reports that the general condition of the island remains satisfactory. The area of land on which crops have been planted has increased enormously in the past twelve months. It is expected that the copra output will be unusually large. Public works and improvements have been pushed to the utmost. The native population is 12,448, an increase of 309 during the year.

Education.—The schools of the island are steadily improving and the people are taking a great interest in the cause of education. During the

year $2,435.54 was expended for school repairs, furniture, etc., including the new school building at Yigo, which was opened for attendance on Feb. 17. The school enrollment is 1,946.

Sanitation.—Owing to the improvement in sanitary conditions, the almost universal worm treatment, and the instruction in hygiene given the school children, the general health of the native population is believed to be slowly improving, in spite of the widespread epidemic of measles and mumps and the increased activity of chickenpox. Over 1,500 cases of measles have been reported, but no deaths have resulted from this disease. Seven deaths occurred from leprosy and six new cases were discovered, but, in accordance with recommendations of the Governor for the past few years, all lepers were removed to the Philippine Leper Colony at Culion, so the island is free from this disease for the first time in many years. Gangosa is under control, although during the year 22 cases were added to the list and there were six deaths due to this disease. Despite the precautions given the native inhabitants, 50 deaths occurred from various forms of tuberculosis, which, however, is a slight decrease from last year, and as soon as the tuberculosis sanatorium which is being built is completed, a gradual diminution in the number of cases and deaths from this disease is hoped for. No new intestinal parasites were discovered during the last fiscal year.

Commerce and Industries.—The total imports for the year amounted to $160,232.77, those from the United States having increased from $54,300.24 in 1913 to $75,556.59. The exports amounted to $37,371.89, mostly copra, a marked decrease from last year. Owing to the drought in the Spring of 1913 and the typhoons, only 567 tons of copra were exported, as against 1,047 tons in the preceding year.

HAWAII

Economic Condition.—Prosperity and progress have characterized the last year in Hawaii, as it has for the past several years. To even a greater extent than Porto Rico, the prosperity of Hawaii is dependent on the sugar industry. The reduction of the tariff on sugar after March 1, 1914, with free sugar after May 1, 1916, as provided in the Tariff Act of 1913, is quite a blow to this industry in the territory, the result of which cannot be foretold. During the year 55 corporations were created, and five large steamers were added to the transportation service. The past two years have been marked by extensive construction of public works, for which appropriations of $4,503,970.09 were made.

Legislation.—The seventh legislature of the territory began its biennial session on Feb. 19. The session was characterized by the harmonious relations between the houses and between the legislature with the executive authority. The legislation was distinctly progressive. The number of bills passed was 170, the largest passed by any legislature of Hawaii. Among the important acts were the creation of a Public Utilities Commission with broad powers, a direct-primary law, and a law prohibiting political contribution by corporations.

Population.—A recent census shows the population on June 30, 1913, to have been 217,744, an increase of 13.46 per cent. since the census of 1910. The most noticeable feature is the rapid increase in the number of Filipinos, 5,747 having been introduced by the sugar planters during the year, bringing the total introduced in the last four years up to 13,715. The lack of efficient labor continues the great problem in the territory. Strong effort has been made to strengthen the Caucasian element in the population by introducing European labor. In the six and one-half years ending June 30, 1913, the territory introduced 15,012 immigrants from Spain, Portugal and Russia, of whom 5,399 were men, at a cost of $227.26 per man.

Education.—The new financial policy adopted two years ago for the public schools is operating well and has resulted in an increase in the number of teachers and pupils and in the average efficiency of the teachers in consequence of the payment of higher salaries. The sum of $946,541.50 was expended for school purposes during the year. There are now 161 public schools and 51 private schools; 674 teachers in public schools and 312 in

private schools; 25,631 pupils in public schools and 7,307 in private schools.

Sanitation.—All of the islands are now fairly well protected by a well organized and efficient sanitation service. There were no epidemics during the year. The number of deaths from all causes was 3,232, the greatest number (426) from pneumonia, and 341 from tuberculosis. The mosquito and rat campaigns at Honolulu and Hilo have been continued with beneficial results. There are at present 726 lepers in the territory.

Commerce and Industries.—The sugar exportations continue to be much larger than all other exports combined, though there was a large decrease from the amount of the preceding year, due to a shortage in the crop on account of drought. The pineapple industry has increased about fivefold during the last five years and continues to show a vigorous growth. The exportations of coffee have also greatly increased. The total value of the external trade for the year was $79,474,880. During the last six years the imports from continental United States have more than doubled. The following table shows the values of the principal local products shipped from Hawaii to the United States and foreign countries in the last three years:

	1911 $	1912 $	1913 $
Sugar	36,704,656	49,961,536	36,662,227
Coffee	346,507	397,761	492,883
Fruit and nuts	2,173,218	2,948,733	4,055,622

PHILIPPINE ISLANDS

Peace and Order.—The condition of peace and good order continued throughout the year, with the exception of the occasional disorders among the Moros, which may be expected to continue for some years. Reference was made in the last issue of the YEAR BOOK (1912, p. 224) to the success of the disarmament of the Moros under an executive order of the provincial governor of September, 1911. There was reason to believe that this disarmament would be completed without bloodshed, and it is not possible to say with certainty that the few outbreaks of this year, which have been ascribed to disarmament, were properly due to this cause. In June, however, General Pershing, Governor of the Moro Province, found it necessary to lead a government force against a band of turbulent Moros fortified at Bagsak, who were killed or captured in a serious engagement on June 11, in which the regular troops lost 14 killed (see also XII, *The Army*). The disarmament is steadily progressing, nearly 3,000 arms having been turned in during the year.

Political Conditions.—Political excitement in the islands was greater during the year than at any time since the close of the Philippine insurrection. Striking evidence of the progress made in the islands is the fact that throughout the excitement there has been no public disorder. The excitement was due to the inauguration, for the first time since we have had control of the Philippine Islands, of a Democratic Administration. There was a feeling among business people and the more conservative element in the islands that the agitation preceding the incoming of the Democratic Administration would lead to disorder when people who had been misled by agitators to expect revolutionary changes would find the new Administration continuing the steady progress accompanied by the enforcement of law and the protection of property which had characterized the American occupation. These forebodings, however, were not justified by events. No change in the personnel of the Government was made by the new Administration until September, and no pronouncement of policy was made until October. The several months of waiting were months of complete order, accompanied, it is true, by excitement, but the excitement was rather on the part of the conservative element than on the part of those who had been most active in agitating for a change.

Francis Burton Harrison was appointed Governor-General of the Philippine Islands on Sept. 2, succeeding W. Cameron Forbes, who had resigned

on Sept. 1. Upon his arrival in the Islands on Oct. 6, Mr. Harrison delivered the following message from President Wilson, which has been received in the Islands with deep satisfaction (see also I, *American History*).

We regard ourselves as trustees, acting, not for the advantage of the United States, but for the benefit of the people of the Philippine Islands. Every step we take will be taken with a view to the ultimate independence of the Islands and as a preparation for that independence; and we hope to move towards that end as rapidly as the safety and the permanent interests of the Islands will permit. After each step taken experience will guide us to the next. The Administration will take one step at once. It will give to the native citizens of the Islands a majority in the appointive Commission, and thus in the upper as well as in the lower house of the legislature. It will do this in the confident hope and expectation that immediate proof will thereby be given in the action of the Commission under the new arrangement of the political capacity of those native citizens who have already come forward to represent and lead their people in affairs.

The Philippine Commission as reorganized by President Wilson is composed as follows, with Mr. Denison's nomination still pending.

Governor-General and President of Commission.—Francis Burton Harrison.
Vice-Governor and Secretary of Public Instruction.—Henderson S. Martin.
Secretary of the Interior.—Winfred T. Denison.
Secretary of Commerce and Police.—Clinton L. Riggs.
Secretary of Finance and Justice.—Victorino Mapa.
Members without portfolios.—Jaime C. de Veyra, Rafael Palma, Vicente Ilustre, Vicente Singson.

Education.—Very encouraging advance has been made in education during 1913, which is chiefly shown in the higher standard of the instruction in English, as well as in industrial and vocational work, in the better school buildings, in the improvement in the American and Filipino personnel connected with the Bureau of Education, and in the effectiveness with which the programme for physical training is becoming operative. The total enrolment of Filipino pupils for the year was 440,050. Public instruction has not yet been extended to every section of the islands, but a recent allotment to the Bureau of Education made possible the opening of 1,000 new primary schools which will accommodate 100,000 additional pupils during the year 1913-4. There are in the public schools a teaching staff of 658 Americans and 7,013 Filipinos, 120 Americans and 610 Filipinos being engaged in instruction in industrial work.

Public Works.—The administration of Governor Forbes in the Philippines, while remarkable for progress along many lines, will be longest remembered for the great development of public works in the Islands, principally public works of utility in developing agriculture and commerce. Governor Forbes leaves Manila by far the best harbor in the Far East. The harbors of Cebu and Iloilo have been greatly improved, and improvements at Zamboanga are now in progress. The railroad mileage in the Islands has increased from 120 miles in 1903 to 708 miles in 1913. The first-class highways have increased mileage from 303 in 1907 to 1,187 on Jan. 1, 1913. In addition to these, there are now 1,305 miles of second-class and 1,967 miles of third-class roads.

Sanitation.—Continued improvement in the general health conditions of the Philippines was shown during the year, but the authorities have been greatly disappointed in the persistency of leprosy. There are now 3,500 lepers at the leper colony and new lepers are being gathered up at the rate of about 500 a year. The increase in the number of lepers reported is attributable to the fact that owing to better police control over the islands, lepers are being brought in who hitherto were concealed or escaped notice, and the further fact that the death rate among the lepers is greatly decreased due to the discovery of a method of preventing beri-beri, with which many of them are afflicted, and to their good care and healthy surroundings.

Commerce and Industries.—Trade returns for the year show a generally favorable condition. Imports amounted to $56,327,583, an increase of $1,777,603 over those of 1912. The value of American goods imported shows an increase of $4,782,930 over last year. Several typhoons passed over the islands in October and November, 1912, which did considerable

damage to the hemp and copra crops, and exports were adversely affected as a result. Reduced production of hemp, however, was more than offset by better prices and by the larger output of other commodities, and the total amount of exports, $53,683,326, exceeded by $3,363,490, the high record of 1912. The exports to the United States declined, principally the shipments of sugar. The increase in trade for four years is shown by the following tables of imports and exports:

Year	Imports		Exports	
	From the United States	From other Countries	To the United States	To other Countries
1910	$10,775,301	$26,292,329	$18,741,771	$21,122,398
1911	19,483,658	30,350,064	16,716,956	23,061,673
1912	20,604,155	33,945,825	21,517,777	28,802,059
1913	25,387,085	30,940,498	19,848,885	33,834,441

PORTO RICO

Economic Conditions.—While production in every industry was large, there was during the year almost a money crisis in Porto Rico. This affected principally the sugar industry. This industry had, under American sovereignty, increased so, that from approximately 55,000 tons of sugar per year prior to the American occupation, the amount shipped from the island in the fiscal year 1913 was 383,000 tons. This very rapid development of the industry had been accompanied by speculation and an extension of cane culture far beyond reasonable limits. Whether the refusal of bankers to extend loans or to make advances on the growing crop was due to fear of a modification of the sugar tariff or to the belief that there had been too much borrowed on certain sugar properties in Porto Rico, the result was a practical denial of such loans and extensions. This resulted in placing several of the smaller sugar properties and centrals in the hands of receivers.

In Porto Rico this industry represents more than 60 per cent. of the total industries of the island, and the result of this may well be imagined. Now that the tariff bill has passed with a considerable reduction of the tariff on sugar, effective March 1, 1914, and free sugar after May 1, 1916, it will be necessary for the producers of sugar in Porto Rico to meet the new conditions. Fortunately, the money stringency of the past year has prepared the way for this readjustment. Notwithstanding this, however, the most serious task which the government of Porto Rico has to look forward to for the next five years is this readjustment of its industries so as to meet the changed conditions under which sugar must be hereafter produced.

Political Conditions.—On Nov. 5, George R. Colton, who had been Governor of the island since 1909, resigned; he was succeeded by Arthur Yager, of Kentucky.

The new Administration is called on to meet what is apparently a new alignment on the question of American citizenship in Porto Rico. Heretofore all of the political parties of Porto Rico have favored the grant of American citizenship. In 1906 the lower house of the legislature, composed exclusively of the Unionist or what is now, as then, the majority party in Porto Rico, passed a resolution petitioning Congress to pass a citizenship bill. Again in 1910 this party urged the passage of a citizenship bill, but it now seems to have changed its attitude on this question. During the last session of the Sixty-second Congress, the House of Delegates of Porto Rico cabled to members of the Senate, protesting against the passage of the bill then pending before the Senate. Citizenship is now urged only by individuals of the Unionist party, the Republican party, and the associations of organized labor in Porto Rico. This change of attitude of the majority party has been concurrent with the

organization in Porto Rico of a perhaps not numerous, but educated, group favoring the independence of the island. This also is a comparatively recent development of political thought in Porto Rico and creates another problem for the new Administration to meet.

Legislation.—Next in importance to Porto Rico to the failure of the citizenship bill was the passage of the Underwood Tariff Act (see *Economic Conditions, supra*). The effect of this Act on the sugar industry can only be surmised. Sugar production in the island under the old tariff had been increased in 13 years over sixfold. With the reduction of duty provided in the new tariff there is an accompanying reduction of duty on the principal articles which enter Porto Rico. It is difficult to believe, therefore, that there will not be a considerable reduction in sugar production. The Tariff Act also extended to Porto Rico the income-tax provisions of that law. The proceeds of the tax in Porto Rico will accrue to the government of the island and the tax be collected by the internal-revenue officers of the insular government.

The Legislative Assembly at its regular session and extra session held in 1913 enacted laws of vital importance to the advancement of the people and the protection of labor. The most important of these laws followed naturally from the establishment of an effective sanitary department to which reference was made in the last issue of the YEAR BOOK (1912, p. 226). They provide for the establishment of a Tuberculosis Sanitarium and hospitals in each of the seven districts of Porto Rico, and for the reorganization of the Institute of Tropical Medicine for the study and treatment of tropical diseases in the island. Among the other important Acts were those regulating the work of women and children, revising the excise and license taxes, and amending the weights and measures law. Increased appropriations for educational facilities and public works were also passed.

Education.—The enrolment in the public schools was 161,785, a slight increase over that of the year before. The annual appropriation for school purposes was increased by something more than $1,000,000 and, in order to provide school accommodations for as many as possible of the 295,000 children between the ages of five and 14, an increase of nearly 800 in the number of teachers was authorized by the Assembly. Special attention is still being given to practical courses in manual training, household economy, and agriculture. The board of trustees of the University of Porto Rico completed plans to open a College of Law, a College of Pharmacy, and a University High School. The sum of $14,000,000 has been expended for educational purposes since civil government was established in 1900. Instead of one schoolhouse in 1899, there are now 105 graded school buildings and 264 rural school buildings, while 1,180 separate schools are maintained, and 1,972 teachers are employed in the service.

Sanitation.—Reference was made in the last issue of the YEAR BOOK (1912, p. 226) to the establishment in Porto Rico of a non-partisan insular sanitary service. The result of this legislation has been far more satisfactory than was anticipated. The outbreak of bubonic plague in 1912 resulted in giving to the sanitary service the support of the people, which could not so soon have been won short of some such calamity. As a result of the outbreak of bubonic plague, rat-proofing and rat destruction were taken up and are still being prosecuted by the insular sanitation service. The anti-plague measures have been so persistent and efficient that the aid rendered by the U. S. Public Health Service was found to be no longer necessary and has been discontinued. The last infected rat found in Porto Rico was on Dec. 21, 1912. No plague rat has been found in San Juan since Sept. 10, 1912, and no case of human plague has occurred since Sept. 14, 1912.

An epidemic of typhoid fever appeared in Peñuelas, but was promptly overcome by the vaccination of the entire population and the adoption of the usual protective measures. The work of eradicating hookworm is progressing, 29,816 cases having been treated during the year, resulting in

the complete cure of 10,583. The most difficult problem confronting the health authorities at this time is the prevalence of tuberculosis, and, as noted above, appropriation was made for the construction of hospitals to be devoted especially to the treatment of this disease. Another important feature of the health work has been the mosquito eradication with the resultant decrease in the number of cases of malaria.

Industries and Commerce.—In external commerce the exports and shipments of all products notably increased, and except in sugar, returns therefrom were considerably larger than during any previous year. External commerce reached an aggregate of $49,103,565 for the year, 86 per cent. of exports being shipped to the United States. Of the external purchases, 90 per cent. were made in the mainland markets of the United States. Thus Porto Rico has maintained its position as one of the largest and most valuable customers of the United States, which it has become since free trade with the mainland was extended to the island in 1901.

Internal business, while developing in every line, has naturally been affected by the depression in the sugar industry. Deposits in banking institutions show a healthy increase during the year of 17 per cent. Twenty-eight new domestic corporations, with a paid-in capital of $241,825, and 15 foreign corporations were officially registered and authorized to transact business in the island. Increasing attention has been given to the development of agriculture, resulting in an increased acreage under tillage and thoroughness of cultivation, as well as in a better quality and greater quantity of the products of Porto Rican agriculture.

As shown in the table below, there was a substantial increase in all the agricultural products, but while the sugar shipments were nearly 16,000 tons greater than during the preceding year, reaching a total of 383,000 tons, the reduction in the average price of $16 per ton reduced the total value of sugar shipments approximately $5,000,000 from that of 1912. However, in view of the increase in returns of other products, the total value of all exports and shipments is substantially the same as that of last year, approximately $49,000,000. The following table of exports of the principal products of Porto Rico for the year shows the marked material progress of the island:

	1910	1911	1912	1913
Sugar	$23,545,922	$24,479,346	$31,544,063	$26,619,158
Coffee	5,669,602	4,992,779	6,754,913	8,511,316
Tobacco and its products	5,763,214	5,396,783	7,439,042	9,012,257
Fruits and nuts	1,635,817	2,073,993	2,377,762	3,120,919
All others	1,343,664	2,946,210	1,576,390	1,839,915

TUTUILA

The year 1913 was uneventful, except that on April 13 a severe hurricane passed over the island and caused considerable damage to cocoanut trees, besides destroying the banana and bread-fruit plantations. This caused an unusual scarcity of food, and it was necessary to order foreign food from Sydney.

Education.—The Governor reports that there has been practically no change in the school system during the year. Owing to the lack of funds for school purposes, it has been impossible to erect schoolhouses and employ a sufficient number of trained teachers, and the condition of the schools is still unsatisfactory. The Governor renews his recommendation that the public schools be taken over by the Federal Commissioner of Education. Three Samoan boys have been sent to the Hilo boarding school, Hawaii, at the expense of the island government. The schools of the Western District have been conducted during the year in a satisfactory manner by the Marist Brothers, who are paid $1,000 per year by the island government. A new Catholic school was constructed directly opposite the Naval Station on Pago

Pago Bay, but this school receives no financial or other aid from the island government.

Health.—The general health of the natives has been good. The Samoan Hospital, completed in September, 1912, has proved to be very successful; 2,517 persons were examined and treated therein, and 187 operations were performed. The most prevalent diseases are tuberculosis, yaws, eye diseases and intestinal parasitical infections. These diseases receive the careful attention of the Board of Health, which holds its regular meetings once a month.

Finances.—The finances are in good condition. The crop of copra, still handled by the government, may be somewhat reduced in 1913, owing to the unfavorable weather. The amount produced up to June 30 was 14 tons less than that produced during the same period of the year 1912. The contract for the 1913 copra crop was awarded at a price of $100.25 per ton, an increase of $6.50 over the 1912 contract price.

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IX. LAW AND JURISPRUDENCE

FRANCIS M. BURDICK

FOREIGN JURISPRUDENCE

International Bills of Exchange.—The draft of a uniform law on bills of exchange, referred to in the YEAR BOOK for 1911 (p. 149), was again taken up at the second Hague Conference on this subject in 1912, and given a final form for adoption. All the leading commercial nations of Continental Europe and of Latin America bound themselves at this conference to secure the enactment of this uniform law by their various legislatures. It is expected that within two or three years, every commercial state, except Great Britain and her dependencies and the United States, will have adopted this law. If this expectation is realized, international trade will then need to concern itself with but two legal systems governing bills of exchange.

This conference took up also the subject of international checks. Continental law does not treat a check as a species of a bill of exchange, as does our law, but as a legal instrument quite distinct from a bill. It requires, therefore, a separate statute for its definition and regulation. The conference adopted a series of resolutions formulating the principles in accordance with which a draft for a uniform law of checks is to be made. This will be considered at a future conference, and will be adopted undoubtedly by the countries which have not accepted the English legal conception of the check. The report of the United States commissioner, Charles A. Conant, on the conference of 1912 and on the proposed law of checks, has been printed as Sen. Doc. No. 162, 63d Cong., 1st Sess., by the Government; and presents an interesting account of the proceedings and an instructive discussion of the differences between our law of checks and that proposed by the second Hague Conference. He points out that the use of checks is unfettered in this country

> except by such regulations as are necessary to protect parties in interest against fraud. These regulations are the fruit of banking experience crystallized into positive law, and possess a simplicity and flexibility which is lacking in most of the systems of Continental Europe. The employment of checks in those countries is surrounded by formalities which are the outgrowth of different methods of banking organization, different methods of doing business, and the fiscal necessities of the state.

Legislation.—That the general trend of legislation throughout the world is markedly humanitarian, and follows similar lines in all civilized nations, cannot be doubted.[1]

Belgium has enacted a statute for the purpose of safeguarding the physical and moral environment of children. It has been under discussion in the Belgian Parliament for nearly a decade, and embodies many provisions which have been found to work well in this country, including one for a new magistracy, the "Children's Judge."

Legislation of a similar character has been enacted in France, though the French statute does not provide for separate juvenile courts. Existing laws relating to tenements for the poor, to pensions for workingmen, and to frauds in the sale of merchandise, especially adulterated arti-

[1] See the *Annual Bulletin* of the Comparative Law Bureau of the American Bar Association, July, 1913.

cles, have been amended, with a view to securing greater protection to the poor and helpless.

The volume of public statutes in Great Britain for the second and third years of George V looks surprisingly small to a citizen of the United States; it contains only 146 pages, comprising 31 chapters. The most important of these are the Minimum Wage Act (Chap. 2, *A. Y. B.*, 1912, p. 130); the Shops Regulation Acts (Chaps. 3 and 24), directing that "no assistant in such a shop shall be employed for more than 65 hours a week, exclusive of meal times, and shall be given 32 whole holidays on a week day in each year and 26 whole holidays on Sunday in every year, with certain intervals for meals"; amendments to the White Slave Act (Chap. 20); amendments to the Aerial Navigation Act (Chap. 22), enlarging the authority of the Secretary of State for War on this topic; amendments to the Trades Union Law (Chap. 30); and an Act to consolidate and amend the law relating to Pilotage (Chap. 31). The most important statutes for the third and fourth year of George V are the Children's (Employment Abroad) Act (Chap. 7), restricting young persons from going abroad for the purpose of performing for profit; the Herring Fishery (Branding) Act (Chap. 9), a bit of pure-food legislation; the Fabrics (Misdescription) Act (Chap. 17), making the misdescription of inflammable goods a crime punishable in a summary manner; the Forgery Act (Chap. 27), consolidating, simplifying, and amending the law relating to forgery; and the Mental Deficiency Act (Chap. 28).[1] (See also IV, *The United Kingdom.*)

Upon becoming a member of the union for the protection of authors of literary and artistic works, under the Treaty of Berlin of 1908, Holland found it necessary to revise its legislation on this subject. Its new law extends protection to all publications and writings, without regard to their artistic or literary value. While the copyright of a portrait or photograph belongs to the photographer, he is not allowed "to publish it without obtaining the consent of the subject painted or photographed, during his life, or of his next of kin for a period of ten years after his death." The law, it will be observed, accords even greater protection to the right of privacy than does the statute of New York of a similar character (L. 1903, Ch. 132).

The various states of Latin America have shown themselves subject to the same legislative currents that prevail elsewhere. Argentina permits foreign corporations to do business in that country, providing that they file proofs of their legal organization in their home state. Bolivia and Nicaragua recognize the validity of civil marriages, and Ecuador has accorded to married women the right to make contracts as well as to buy, hold, and convey real estate without their husbands' consent. Costa Rica and Nicaragua have entered upon labor legislation, regulating the payment of wages and the arbitration of labor disputes.

While legislative activity has not been great in Spain, it has extended to the "construction of cheap houses," regulating their rentals and exempting them from taxation for 20 years. It has reformed the contract of apprenticeship in the interests of the apprentice. It has fixed the tariff of attorneys' fees for many kinds of service at a very low figure; regulated the capitalization of corporations; provided for the better treatment of women employees in stores; limited the hours of labor in mines, and prohibited the employment of children under 16 and of women in any kind of subterranean labor.

Judicial Decisions.—A Belgian court has no more doubt than an English or American court would have that a promise to marry a woman within eight months or to pay her 7,000 fr. in consideration of her cohabiting with the promisor is void as against public policy (Court of Appeal, Liège, *Pasicraisie Belge*, 1913, I, 9); or that a court should decree the dissolution of a partnership which could be continued only at a loss (Tribunal of Commerce, Ghent, *ibid.*, 1912, III, 103).

[1] This Act was passed to correct the defects of existing law. See "Some Anomalies and Shortcomings of Lunacy Law," 29 *Law Quarterly Review*, 179, April, 1913.

The rights of a pledgee in France to property which has not been actually delivered to him, under Art. 92, Code of Commerce, and Art. 2076, Civil Code, are different from those secured by the English common law, as shown in Liquid, de la Soc. la Cellulose française *v.* Soc. Générale (Cass.-Req., 2 Jan., 1912). In Larose *v.* Naux (Cass.-Civ., 20 April, 1912) it was held that the French Employers' Liability Act extended the liability of the employer to an accident befalling his employee, through chance or the latter's unskillfulness, in falling and breaking his leg while entering a hotel after a business engagement with a customer.

With the foregoing case may be compared two recent decisions under the Workmen's Compensation Acts in England, which are adverse to the employee. In one the question was whether a journeyman baker whose right hand had been injured by frostbite while driving on his rounds in his employer's cart was entitled to compensation as for an "injury by accident arising out of and in the course of the employment"; the House of Lords affirmed the decisions of the lower courts that it was not (Warner *v.* Couchman, 1912, A. C. 35, 81 L. J. K. B. 45). In the other case, the employee was killed by a drunken bully because he warned the bully not to stand so near the horse which deceased was driving, lest the horse might hurt him. Such death was held not the result of an accident arising out of and in the course of employment (Mitchinson *v.* Day, 1913, 1 K. B. 603, 82 L. J. K. B. 421).

In both of these cases, as in most of the cases in England under the Workmen's Compensation Acts, the controversy involves no broad legal principle. It calls for the determination of a question of fact, or for the construction of a statutory phrase. Sir Frederick Pollock has referred to these decisions as "the wearisome tale of Workmen's Compensation Cases" (29 *Law Quarterly Review*, 247). It was supposed that this legislation would do away with a great mass of litigation, but the *Law Reports* show that this expectation has not been realized. The number of litigated cases between employers and employees going to the House of Lords has greatly increased since the enactment of Workmen's Compensation Acts, while the total number in all of the courts is enormous. The *Complete Current Digest of the Law Reports*, of Aug. 1, 1913, devotes 40 fine-type columns to these cases. Indeed, so numerous have they become that many treatises have been published with a view of deducing the principles of law established by the decisions. One of the latest of such books devotes 76 closely printed pages to the exposition of the first section of the Workmen's Compensation Act. Certainly the statute has not realized the expectations of its sponsors as a statement of legal rules which could not be misunderstood even by the man in the street and could be swiftly and unerringly administered by lay arbitrators.

Rickards *v.* Lothian (1913, A. C. 263, 82 L. J. P. C. 42) is notable as showing the disposition of English courts to narrow the doctrine of Rylands *v.* Fletcher (L. R. 3 H. L. 330). It holds that a landlord who had provided on the top floor a water supply and lavatory for all tenants of the building was not liable for damages to the goods of a tenant on a lower floor, inflicted by the overflow of water from the lavatory, caused by the malicious act of a third person who choked the overflow pipe and turned on the tap. The Privy Council declared that the landlord in supplying the lavatory was putting his land to a reasonable and ordinary use and not "to some special use, bringing with it increased danger to others." They also declared that had the use been of such a hazardous character, the landlord would not have been liable, as the damage was not due in any legal sense to his acts, but to the malicious act of another, which he had no reason to anticipate.

The House of Lords has decided that, under the Trades Dispute Act of 1906, "no action in respect of any tortious act alleged to have been committed by or on behalf of a trade union can be entertained by any court, whether such tortious act was or was not committed in contemplation or furtherance of a trade dis-

pute" (Vacher & Sons *v.* London Society of Compositors, 1913, 82 L. J. K. B. 232). Another interesting decision connected with trade unions is that of Oram *v.* Hutt (1913, 1 Ch. 259, 82 L. J. Ch. 152), holding that a union is guilty of maintenance and acts *ultra vires* in paying the costs of a slander suit brought by one of its officers for slanders reflecting upon his management of the union. The costs thus paid amounted to £949, which the defendants in the above entitled action were compelled to restore to the union's treasury. An action for misapplication of funds or for illegal expulsion may be maintained against the union, such proceedings being founded in contract and not in tort (Parr *v.* Lancashire and Cheshire Miners' Fed., 1913, 1 Ch. 366, 82 L. J. Ch. 193).

LEGISLATIVE TENDENCIES

Volume of Legislation.—No one can even glance at the columns of *Session Laws* of the current year without amazement at the volume of legislative output. California leads the van, and its legislators appear to be proud of this distinction, for they print in the forefront of the huge bulk of session laws for 1913 the name of the author of each act. These acts number 699, besides 99 joint resolutions and constitutional amendments, and fill 1,746 closely printed pages. In addition to the foregoing, the constitution as it stood before these amendments is reprinted, covering 50 pages in small type. Such a document is not limited to outlining a frame of government, but is filled with multifarious details suggested by petty and temporary controversies. Such a constitution encourages, if it does not necessitate, annual broods of amendments. But, the California legislators of 1913 did not stop with proposing changes in the constitution. They tinkered with multitudes of existing statutes and added a vast mass of new legislation. It is fair to say that a different spirit prevailed in some of the other legislatures. Connecticut limited itself to 241 chapters, occupying but 271 pages; and South Carolina and Texas showed almost as great self-restraint.

Referendum Petitions. — In accordance with the California constitution, four important acts of 1913 have been subjected to the referendum hold up. These are the Red Light Abatement Act (Ch. 17), the Blue-Sky Act (Ch. 353), Non-Sale of Game Act (Ch. 579), and the Water Commission Act (Ch. 586). But for referendum petitions, these statutes would have become effective on Aug. 10, 1913. Now they are suspended until the general election in November, 1914, when they will be submitted to the electors. At the election in November, 1912, several acts passed by the legislature of 1911 were repealed by popular vote.

Initiative Statutes. — Perhaps the most extraordinary piece of initiative legislation of the year is found in the Montana *Session Laws* (pp. 593-616), "A bill to limit candidates' election expenses," etc.

Legislative Plagiarism.—Two of the California statutes referred to above, the Red Light Abatement Act and the Blue-Sky Act (see XIII, *The Conduct of Business*), were copied from the legislation of other states. One or both were copied also by Arkansas (Act 214), Connecticut (Ch. 127), Florida (No. 2), Idaho (Ch. 117), Iowa (Ch. 137), and Minnesota (Ch. 562). The Bulk Sales Act is another piece of legislation which was copied by several legislatures, *e.g.*, Arkansas (Act 88), Illinois (p. 258), Missouri (p. 163), South Dakota (Ch. 116), Washington (Ch. 175). The spirit and in some cases the letter of the Sherman Anti-Trust Act has been incorporated into state statutes and made applicable to intrastate business; for example, see Indiana (Ch. 117), Iowa (Ch. 310), Maine (Ch. 106), Michigan (No. 103), Minnesota (Ch. 230), Missouri (pp. 549 and 555), Montana (Ch. 7), New Jersey (Ch. 210), New York (Chs. 408, 457), North Carolina (Ch. 41), Ohio (Ch. 254), and South Dakota (Ch. 356). The rule of the Carmack Amendment, that the initial carrier shall be liable to the shipper for the negligence of connecting carriers, has been applied to intrastate shipments in Michigan (No. 389) and Minnesota (Ch. 315).

Statutory regulation of railroad train crews seems to have been copied from a common original in California (Ch. 168), New Jersey (Ch. 190), and New York (Ch. 146).

In some instances similar statutes in different states are due, undoubtedly, to similarity of evils to be remedied; for example, anti-gypsy laws in Indiana (Ch. 356) and in Iowa (Ch. 312), and the anti-hazing statutes in North Carolina (Ch. 169, Sec. 2 contains a definition of hazing) and in Texas (Ch. 117).

Legislative Originality.—While most states which have legislated on the subject since the decision of the Ives case (201 New York 271, 1911) have chosen the elective rather than the compulsory system of workmen's compensation, California stands by its radical colors. Not only is its Workmen's Compensation Act compulsory, but it applies to every employer (Sec. 13), thus nullifying Miller *v.* Pillsbury (164 Cal. 199, 1912), which arose under the Employers' Liability Act of 1911, and in which it was held that the law did not apply to state employees. Even more singular is the Act regulating the use of wiping rags. Under this, a housewife who gives to her servant a part of "underclothing, wearing apparel, bedclothes or clothes," to be used "for wiping the surfaces of windows and furniture . . . unless the same has been sterilized by a process of boiling for 40 minutes in a solution containing 5 per cent. of caustic soda, is guilty of a misdemeanor" (Ch. 81). Another statute of considerable originality is that of Kansas (Ch. 170), providing for small debtors' courts in cities, in which an alleged debtor can be summoned orally, or by mail or telephone, the "cause tried considerately and summarily," and no costs given to either party. Maine has made it a criminal breach of the peace to drink any intoxicating liquor as a beverage on any train, street car, steamboat or ferry (Ch. 42). Michigan regulates not only barber shops, but schools and colleges for the training of barbers. It prohibits barbers from serving in their shops any person "affected with erysipelas, eczema, impetigo, sycoris, tuberculosis or any other contagious disease," and forbids a person so affected from demanding service (Ch. 387). Minnesota authorizes municipalities to try the experiment of planting and protecting municipal forests (Ch. 211). Montana provides for the registration of farms and ranches (Ch. 49). Nevada prohibits the owners of artesian wells from permitting water to run to waste or to employ it for any "save beneficial uses" (Ch. 54).

Commission on Uniform State Laws.—This Commission is now a very representative body, having delegates from 48 jurisdictions. The uniform acts which it has recommended for adoption by state and territorial legislatures are gradually unifying the law throughout the nation, upon many important topics. During the past year Alaska, Arkansas, Indiana, Minnesota, South Dakota and Vermont have enacted the Uniform Negotiable Instruments Law. The Uniform Bills of Lading Act was adopted in Alaska and New Jersey; the Uniform Sales Act in Alaska and Michigan; the Uniform Stock Transfer Act in Alaska, Michigan and New York; and the Uniform Warehouse Act in Washington, Oregon, Minnesota, Nevada, South Dakota and Vermont. The Uniform Marriage Evasion Act was passed in Massachusetts and formally approved by the American Bar Association. It seeks to prevent fraud upon the courts of any state through residents going to another state and contracting a marriage relation which would be void in the state of their residence and then returning to resume the residence which had really never been interrupted. The Uniform Non-Support Act was adopted by Delaware, and the Uniform Wills Act by Colorado.

JUDICIAL DECISIONS

CONSTITUTIONAL LAW

Construction of Constitutions.—The prevailing view is that a constitution is to be broadly construed, so as to promote the object of the people in adopting it; to that end, narrow and technical definitions of particular words will be disregarded. See State *v.* Birmingham Southern Ry. (62 So.

77, Ala., March 24, 1913); Hipp *v.* Hock-Hocking, etc., Co. (101 N. E. 1053, Ohio, May 6, 1913, construing the constitution of 1912); Scribner *v.* State (132 Pac. 933, Okla., May 31, 1913).

Attorneys at Law.—The power of the courts as compared with that of the legislature to determine the qualifications and fitness of attorneys at law is very fully considered in the following cases: State Bar Commission *v.* Sullivan (131 Pac. 703, Okla., Nov. 22, 1912); *In re* Platz (132 Pac., Utah, April 28, 1913); and Vernon County Bar Association *v.* McKibbin (153 Wis. 350, 141 N. W. 283, April 29, 1913). While the legislature may prescribe reasonable conditions of eligibility for admission to the bar, it cannot limit the inherent right of the court to pass upon the moral fitness of attorneys. Nor is the disciplinary power of the court over the bar confined to statutory provisions on the subject. Authority to practice law is not a vested right, but a mere privilege.

The United States Circuit Court of Appeals for the Second Circuit has declared that it is unseemly for a member of the bar voluntarily to testify as an expert witness in an infringement suit and then argue the case to the court or jury, and a practice which should be discontinued (N. Y. C. & H. R. Ry. *v.* Henney, 207 Fed. 78, June 14, 1913).

Deprived of Property.—A common carrier is not deprived of its property unconstitutionally by a state statute which subjects it to a penalty of $10 per car per hour for prolonging the time of transportation of live stock beyond the periods named in the statute. Such sum may be fixed by the legislature as liquidated damages payable by the carrier to the shipper for its breach of duty. "As the damage accruing from protracted confinement of stock is difficult to prove with reasonable exactitude, and yet always exists, the legislature has power to provide for liquidated damages." (Chicago, B. & Q. Ry. *v.* Cram, 228 U. S. 70, 33 Sup. Ct. 437, April 7, 1913, affirming 84 Neb. 607, 122 N. W. 31.) A land owner who has acquired a right to compensation from a municipal corporation, under a statute which subjects it to liability for consequential damages caused to abutting owners by a change of street grade, is unconstitutionally deprived of property by the repeal of such statute. As to him, such repeal is void. (Ettor *v.* City of Tacoma, 228 U. S. 148, 33 Sup. Ct. 428, April 7, 1913, reversing 57 Wash. 50, 698.) The owner of a water plant is not unconstitutionally deprived of his property by the erection of a municipal water plant which renders the private plant valueless. The owner "is left to depend upon the sense of justice that the city may show." (Madera Water Works *v.* Madera, 228 U. S. 454, 33 Sup. Ct. 571, April 28, 1913, affirming 185 Fed. 281; accord, Denver *v.* N. Y. Trust Co., 229 U. S. 123, 33 Sup. Ct. 657, May 26, 1913.) The owners of brick kilns are not unconstitutionally deprived of their property by a city ordinance which prohibits them from using their kilns within the residential portions of the city. Nor will it matter that when these kilns were established, they were in non-residential locations. (*Ex parte* Hadacheck, 132 Pac. 584, Cal., May 15, 1913.) Nor is a street-railroad company deprived of its property unlawfully when it is required to remove its tracks and other property from the streets within a reasonable time after the expiration of its franchise (Detroit United Ry. *v.* Detroit, 229 U. S. 39, 33 Sup. Ct. 697, May 26, 1913). Nor is the owner of oyster beds unlawfully deprived of property when these are destroyed by the Federal Government in the improvement of navigation (Lewis Blue Point Oyster Cultivating Co. *v.* Briggs, 229 U. S. 82, 33 Sup. Ct. 679, May 26, 1913). The distinction between taking property and subjecting it to remote and consequential damages is brought out clearly in Jackson *v.* U. S. (230 U. S. 1, 33 Sup. Ct. 1011, June 16, 1913, affirming 47 Ct. of Cl. 579). Plaintiff claimed that his plantation was greatly damaged as the result of certain public work done in pursuance of acts of Congress for the public benefit under direction of the Mississippi River Commission. Such damage was held to be consequential and not to constitute a taking of property.

A statute is unconstitutional which fixes $500 as liquidated damages in

favor of the shipper for any excess charge above the statutory rate, regardless of the value of the shipment or the amount of actual damages. It is arbitrary and oppressive. (Missouri Pacific Ry. *v.* Tucker, 230 U. S. 340, 33 Sup. Ct. 961, June 16, 1913, reversing 82 Kan. 222.) Also, if it prescribes unreasonably low rates for railroads, even for intrastate traffic (Minnesota Rate Cases, 230 U. S. 352, 33 Sup. Ct. 729, June 9, 1913). The constitutional provision against taking property is violated by a statute which authorizes the permanent appropriation of private property adjoining railroad tracks for the purpose of establishing a fire line. Such appropriation for the protection of the public against the spread of fire from locomotives is taking private property for public use, and the owner must be compensated. (Vreeland *v.* Forest Park Res. Com., 87 At. 435, N. J., June 18, 1913.)

Due Process of Law.—The Supreme Court has again found it necessary to declare that the "due process of law" clause of the Fourteenth Amendment does not require a state to adopt the institution and procedure of a grand jury (Lem Wood *v.* Oregon, 229 U. S. 586, 33 Sup. Ct. 783, June 9, 1913, affirming 57 Ore. 482). Nor does this clause prevent the Philippine Government from deporting aliens (Tiaco *v.* Forbes, 228 U. S. 549, 33 Sup. Ct. 585, May 5, 1913). Nor does it render unconstitutional a state statute giving to boarding-house keepers as extensive a lien upon the goods brought into the house by their guests as was accorded by the common law to an innkeeper (Nance *v.* O. K. Houck Piano Co., 155 S. W. 1172, Tenn., April 26, 1913). But the clause is violated when a judge decides adversely to a prisoner before the day set for trial, and the formal hearing is a mere farce (*Ex parte* Nelson, 157 S. W. 794, Mo., June 2, 1913). It is also violated by a statute authorizing a municipality to pollute a stream to the injury of lower proprietors without compensation (Atty.-Gen. *v.* City of Grand Rapids, 141 N. W. 890, Mich., May 28, 1913); but not by statutes requiring the drainage of lands in order to prevent or abate a nuisance (Mann *v.* Board of Supervisors, 141 N. W. 711, Ia., May 15, 1913; Palmberg *v.* Kinney, 132 Pac. 538, Ore., May 20, 1913).

Due process of law does not necessarily imply judicial proceedings. A general law administered in its regular course according to the form of procedure suitable and proper to the nature of the case, conformable to the fundamental rules of right and affecting all persons alike, is due process. The object of this constitutional provision is to protect every person in his personal and property rights against arbitrary action of any person or authority. Hence, a statute does not violate it which gives a license board power to revoke architects' licenses upon 20 days' notice and a hearing at which evidence can be given. (Klafter *v.* State Board of Examiners, 102 N. E. 193, 259 Ill. 15, June 18, 1913.) But the statute would be unconstitutional if it empowered the board to revoke the licenses without evidence (Interstate Com. Comm. *v.* Louisville & N. Ry., 227 U. S. 88, 33 Sup. Ct. 185, Jan. 20, 1913). Due process of law, within the constitutional guaranty, limits the exercise of the power of removal of officers to those proceedings expressly provided by statute, or where none are so provided, to the methods which by the common law are required according to established principles of natural justice (Ekern *v.* McGovern, 142 N. W. 595, Wis., June 2, 1913).

Division of Governmental Powers.—That the Federal Government is divided into three distinct and independent branches, and that it is the duty of each to abstain from and to oppose encroachments on another, has been accepted doctrine ever since the decision of Hayburn's Case (2 Dallas 409, 1792). It has been applied without hesitation to state governments and has received specific statement in many state constitutions. Article 3 of the constitution of Michigan declares: "The powers of government are divided into three departments: the legislative, executive, and judicial. No person belonging to one department shall exercise the powers properly belonging to another, except in the cases expressly provided in this constitution." Under this provision, it has been held that the official action of the Governor in removing from office

the mayor of a city, pursuant to authority given by statute, is not reviewable by the judiciary in certiorari proceedings in Germaine *v.* Ferris (142 N. W. 738, Mich., July 18, 1913). But it has been held in Wisconsin that if the Governor acts beyond the scope of his authority and violates private rights, the injured party may appeal to the courts for redress and be entitled thereto, regardless of the official status of the wrongdoer, though such status may have much to do with the manner of redress (Ekern *v.* McGovern, 142 N. W. 595, Wis., June 2, 1913). By this decision the plaintiff was restored to the office of Insurance Commissioner, from which Governor McGovern had removed him, illegally, as the court held. The prevailing and dissenting opinions in this case contain a full review of authorities upon the subject

While the legislature cannot confer upon administrative boards, such as boards of county commissioners, judicial authority, that is, authority to decide actual controversies between litigants duly instituted by judicial process, it can grant them power to perform quasi-judicial functions, such as determining the amount to be allowed for certain official services (Hoyt *v.* Hughes County, 142 N. W. 471, So. Dak., June 24, 1913). Again, the legislature cannot delegate legislative power to administrative boards or officers, but it can confer upon such persons authority to execute laws, including authority to make rules and regulations connected therewith (Railroad Commission *v.* Northern Ala. Ry., 62 So. 749, June 12, 1913). The right to determine the plan and frame of government of proposed villages, and what powers and functions such municipal corporations may exercise, and what shall be the limit of their expenditures and debts, has been declared non-delegable by a legislature to a public service commission (*In re* Municipal Charters, 86 At. 307, Vt., Jan. 13, 1913). The legislature does not abdicate its legislative power when it enacts a statute complete and intended to take effect at once for the future erection of a new county, though it permits the voters within the proposed territory to decide by vote whether the provisions of the statute shall become operative (People *ex rel.* Unger *v.* Kennedy, 207 N. Y. 533, 101 N. E. 442, March 14, 1913). But it does abdicate its power when it undertakes to give to a private individual the option to declare the act of another to be a crime punishable with imprisonment, or a private wrong to himself, redressable in damages (Fortune *v.* Braswell, 77 S. E. 818, 139 Ga. 609, March 11, 1913, holding unconstitutional Secs. 3712, 3713 of Civil Code of 1910).

So long as the legislature keeps within its constitutional sphere of action, its statutes cannot be avoided or modified by judicial decisions (Board of Trustees of University of Miss. *v.* Waugh, 62 So. 827, July 14, 1913, declining to interfere with the operation of a statute abolishing all secret societies in the educational institutions of the state). But the doctrine of separation of governmental powers requires the courts to declare unconstitutional an act of the legislature limiting the Governor's power of appointment of elective commissioners to lists of eligible citizens submitted by the state committees of the political parties. The legislature cannot require the Governor to register the will of such committees, for they are no part of the executive branch of the state government. (State *v.* Wright, 158 S. W. 823, Mo., June 28, 1913.) The court must declare void an act which violates the constitutional requirement that every law shall embrace but one subject, which shall be expressed in the title (Painter *v.* Mattfeldt, 87 At. 413, 119 Md. 466, Jan. 17, 1913). The doctrine of the division of governmental powers does not apply to municipal corporations, in whose officers judicial, executive, and legislative functions may be united (State *v.* Lane, 62 So. 31, Ala., May 8, 1913).

Equal Protection of the Laws.—A statute or ordinance is not violative of the Fourteenth Amendment because it apportions the license fees of theatres on the basis of their prices of admission, imposing a license fee of $1,000 on theatres charging $1 or more for admission, $400 on those charging 50 cents or more, and so on; even though it is proved that some of the theatres of the first class have less

revenue than some of the other classes. The legislation may be unjust and oppressive, but if its classification accords with the understanding of business men generally, it is not palpably arbitrary. The problems of government are practical ones and may justify rough accommodations. Mere errors of government are not subject to judicial review. (Metropolis Theatre Co. *v.* Chicago, 228 U. S. 61, 33 Sup. Ct. 441, April 7, 1913.) The same doctrine was applied to an Illinois statute providing for protections to elevating and hoisting machinery in buildings under construction (Chicago Dock Co. *v.* Fraley, 228 U. S. 680, 33 Sup. Ct. 715, May 26, 1913). Equal protection may be afforded by a statute which does not mete out rigid equality to those subject to its provisions; *e.g.*, a statute exempting from taxation imposed upon telephone companies generally those companies whose gross receipts did not exceed $500 a year. The equal protection clause is not violated by a statute which classifies the rates chargeable by railroads in accordance with the length of their lines, or which excepts electric and street railways from the application of the statute (Chesapeake & Ohio Ry. *v.* Conley, 230 U. S. 513, 33 Sup. Ct. 985, June 16, 1913); nor by a statute which subjects bituminous coal mines to regulations not imposed upon anthracite coal mines (Barrett *v.* Indiana, 229 U. S. 26, 33 Sup. Ct. 692, May 26, 1913). It is violated by a statute which renders the owner of a motor vehicle liable for any injury occasioned by its negligent use by any person except a thief, while leaving the owners of other property to their much narrower common law liability (Barry *v.* Metzger Motor Car Co., 141 N. W. 529, Mich., May 28, 1913). "A classification in a municipal ordinance by which vendors of milk from cows outside the city are subjected to different regulations from those within the city is not a denial of equal protection of the law" (Adams *v.* Milwaukee, 228 U. S. 572, 33 Sup. Ct. 610, May 12, 1913).

Freedom of Contract. — While a common carrier in the prosecution of its business as such is not permitted to drop its character and transmute itself by contract into a mere bailee, with right to stipulate against the consequences of its negligence, this rule has no application when a railroad company is acting outside of its duty as a common carrier, *e.g.*, in contracting for construction work on its roadbed. In such a case it is free to contract for exemption from liability for its negligence, and the highest public policy is found in enforcing such a contract when fairly made. (Santa Fe Ry. *v.* Grant Bros., 228 U. S. 177, 33 Sup. Ct. 474, April 7, 1913, reversing 13 Ariz., 186.) Under the Carmack Amendment a shipper is not bound by a stipulation in his contract with the initial carrier, exempting the latter from damages not occurring on his portion of the through route, such contract being in violation of the statute (Norfolk & W. Ry. Co. *v.* Dixie Tobacco Co., 228 U. S. 593, 33 Sup. Ct. 609, May 12, 1913). The Supreme Court of Louisiana prefers the doctrine of Lochner *v.* New York (198 U. S. 45) to that of later cases, and holds Act No. 245 of 1912 unconstitutional because it limits a full day's labor for stationary firemen to eight hours. The right of the employer and of the employee to make such contracts as they choose is unnecessarily interfered with by such statute, said the court.

Such right is not improperly invaded by a statute which forbids a carrier from keeping live stock in cars for more than 28 hours without feeding and watering them, and invalidates any contract on the part of the shipper exempting the carrier from damages caused by such violation. The statute is not for the benefit of the shipper and he cannot waive its requirements. Its primary purpose is to prevent cruelty to animals. (Cleveland, C., C. & St. L. Ry. *v.* Hayes, 102 N. E. 34, Ind., June 5, 1913.) The bulk-sales law has been declared constitutional in Indiana (Rich *v.* Callahan Co., 101 N. E. 810, Ind., May 14, 1913), and in Oklahoma (Humphrey *v.* Coquillard Wagon Works, 132 Pac. 899, Okla., June 20, 1913), and not to interfere unreasonably with the freedom of contract.

Impairing Obligations of Contracts. —In Abilene National Bank *v.* Dolley (228 U. S. 1, 33 Sup. Ct. 409, March 17, 1913) it was held that the Kansas

Bank Depositors' Guaranty Act (L. 1909, c. 61) does not impair the obligation of contracts clause, as it applies only to contracts between national banks and state banks made after the enactment of the statute. A state does not impair the obligation of its contract with one who has contracted to build a State House by refusing to permit the contractor to do the work. The obligation of the contract remains if the state has acted wrongfully. While the state may not be sued for its breach of contract without its consent, the contractor can appeal to the legislature for redress, "which can and, it must be presumed, will do whatever justice may require in the premises." (Caldwell *v.* Donaghey, 156 S. W. 839, Ark., April 28, 1913.)

The obligation of a contract is impaired by the revocation of the right granted by a municipality to a water company to use the streets for its pipes after the company has expended large sums in developing its water-supply system and laid its pipes in the streets. The right acquired under a valid municipal ordinance of this kind "is a valuable legal right, having all the attributes of property." (Boise Water Co. *v.* Boise City, 230 U. S. 84, 33 Sup. Ct. 997, June 16, 1913.) The same doctrine was applied to a municipal grant of right to a telephone company to use the streets for its poles and wires in Owensboro *v.* Cumberland Tel. Co. (230 U. S. 58, 33 Sup. Ct. 988, June 16, 1913); and in Old Colony Trust Co. *v.* Omaha (230 U. S. 100, 33 Sup. Ct. 967, June 16, 1913) to a street franchise granted to an electric-light company.

Interstate Commerce.—This phrase continues to give the courts trouble. Is a railroad employee engaged in interstate commerce when carrying bolts to be used in repairing a railroad bridge which is used by interstate trains? This was answered in the affirmative by a divided court in Pedersen *v.* Del., L. & W. Ry. (229 U. S. 146, 33 Sup. Ct. 648, May 26, 1913, reversing 195 Fed. 537). An employee whose duty it is to take the numbers of, and seal up and label, cars, some of which are used in interstate commerce, is engaged in interstate commerce under the Federal Employers' Liability Act (St. L. & San Francisco Ry. *v.* Seale, 229 U. S. 156, 33 Sup. Ct. 651, May 26, 1913). Property in the course of transportation from one state to another state or to a foreign country is subject to interstate commerce rates and regulations, notwithstanding it is shipped under local bills of lading to a seaport within the first state where it is to be put aboard ships for its final destination (Louisiana Ry. Com. *v.* Tex. Pac. Ry., 229 U. S. 336, 33 Sup. Ct. 837, June 10, 1913). But property, which has been shipped from one state to another, where it is stored while awaiting orders or means of transportation to a third state, is not in interstate commerce (Susquehanna Coal Co. *v.* South Amboy, 228 U. S. 665, 33 Sup. Ct. 443, May 26, 1913).

State legislation establishing the weight of a barrel of sweet potatoes is not a regulation of interstate commerce (Comm. *v.* Gussacan, 102 N. E. 342, Mass., June 18, 1913). Congress has divested "intoxicating liquors of their interstate character in certain cases" (Atkinson *v.* Southern Ex. Co., 78 S. E. 516, S. C., May 14, 1913, applying the Webb Act of March 1, 1913, Ch. 90, 37 Stat. 699, for which see I, *American History*).

Shipments between points within a state which never pass outside the state limits are not a part of interstate commerce, and, therefore, cannot be subject to the Federal Interstate Commerce Act (Sullivan *v.* Minn. & R. R. Ry., 142 N. W. 3, Minn., 1913). But shipments fall within the Act, though passing from one point to another within the state, if a portion of their journey is through another state (Crescent Brewing Co. *v.* Oregon Short Line, 132 Pac. 975, Idaho, 1913). Whether state legislation affecting shipments of the latter class is void, because violative of the exclusive right of the Federal Government to regulate interstate commerce, depends upon its character. If it provides that no one shall sell adulterated milk and shall not deliver any for shipment unless it bears a label with a true description of its adulterated character, it does not attempt to regulate commerce, but is a valid exercise of the state's police power. (People *v.* Abramson, 208 N. Y. 138, 101 N. E. 849, April 15, 1913.) So a state li-

cense tax on express companies for receiving and sending packages to and from points within the state is not unconstitutional as a regulation of interstate commerce, though some of the packages are carried by routes lying partly in another state; but a statute fixing the rates for transportation over such routes would be a regulation of interstate commerce, and therefore beyond the constitutional authority of the state (Ewing *v.* Leavenworth, 226 U. S. 464, 33 Sup. Ct. 157, Jan. 6, 1913).

The owners of private pipe lines are not engaged in interstate commerce in transporting their oil through these pipes and cannot be subjected to the duties and liabilities of common carriers, by Congressional legislation (Prairie Oil & Gas Co. *v.* U. S., 204 Fed. 798, Commerce Court, March 11, 1913). "A regulation of a state railroad commission that the railroad company must deliver freight to, or place the car in an accessible place for, the consignee of interstate shipments within 24 hours after arrival, without allowance for justifiable and unavoidable delay, is an unreasonable interference with and burden on interstate commerce and void under the commerce clause of the Federal Constitution" (Yazoo & Miss. Valley Ry. *v.* Greenwood Grocery Co., 227 U. S. 1, 33 Sup. Ct. 213, Jan. 20, 1913).

Trial by Jury.—The right of trial by jury is varyingly guaranteed by state constitutions. In South Carolina, for example, the compensation for property taken for public use must be ascertained by a jury of twelve men in a court of record (South Car. & W. Ry. *v.* Ellen, 78 S. E. 963, June 6, 1913, applying S. C. Const., Art. 9, Secs. 20 and 21). The New York constitution provides that no person shall be held to answer for an infamous crime except on the presentation or indictment of a grand jury; but it is competent for the legislature to reduce felonies to the grade of misdemeanors when committed by children under 16, and to subject such juvenile criminals to Courts of Special Sessions without the intervention of a jury (People *v.* Kaminsky, 208 N. Y. 389, 102 N. E. 515, May 13, 1913).

Constitutional guaranties of trial by jury do not extend to suits in equity, such as those for the specific performance or the rescission of contracts or the cancelation of deeds (Akins *v.* Holmes, 133 Pac. 849, 89 Kan. 812, June 7, 1913). And if issues of fact in such suits are submitted to a jury, its verdict is not binding on the Court; it should give the verdict due consideration, but if after such consideration the court is of the opinion that the verdict is incorrect, it may ignore it and render such judgment as in its opinion is proper (Hogan *v.* Leeper, 133 Pac. 190, Okla., June 19, 1913). One is not a "good and lawful man" under a statute requiring a juror to be such, who declares that in his opinion the prohibition liquor law of Tennessee should be enforced in Shelby County outside of Memphis but not in Memphis. Such a man is not impartial, but believes in an unequal and partial enforcement of the law. (Turner *v.* State, 157 S. W. 67, Tenn., May 24, 1913.)

Martial Law.—The power of a state Governor to declare martial law in the case of riots, the status and authority of a military commission called into existence under such a proclamation of the state Executive, and the limits of its jurisdiction, are discussed with great fulness and learning in *Ex parte* Jones (77 S. E. 1029, W. Va., March 21, 1913). The court held that the constitution of West Virginia empowered the Governor to issue the proclamation, which he issued; that within the districts defined by him as insurrectionary the war power of the state in the form of military rule prevailed to the exclusion of civil tribunals; that the Governor could lawfully order the arrest of all persons willfully giving aid, support, or information to the insurgents; that the arrest, imprisonment, and punishment under the Governor's proclamation by a military commission organized under the constitution and statutes of the state did not deprive persons so dealt with of their liberty without due process of law. The decision is based largely on Moyer *v.* Peabody (212 U. S. 78, 29 Sup. Ct. 235, 1909).

Police Power.—While the courts are not disposed to limit the police power narrowly, they do insist that it shall not be exercised unreasonably. Hence,

a city ordinance was held void which required all stables in which two or more horses, mules, or cows were kept to be connected with water-mains and sanitary sewers, although much of the city's area extended beyond the water-main and sewer system of the city. The ordinance required of stable owners in this area what was practically impossible. (Board of Com'rs *v.* Orr, 61 So. 920, Ala., April 10, 1913). The Supreme Court of Mississippi held a statute (L. 1912, c. 108) unconstitutional which required the licensing and registration of automobiles and the payment of fees varying from $5 to $25, when the expense to the state attached to the licensing of such cars did not exceed $1 (State *v.* Lawrence, 61 So. 975, May 26, 1913). Had these licensing provisions been part of a scheme for providing a highway fund, the decision would probably have been different (Gasconade Co. *v.* Gordon, 241 Mo. 569, 145 S. W. 1160, 1912).

A statute abolishing the fellow-servant rule is a valid exercise of the police power, nor is it unconstitutional because it excepts from its operation domestic servants, farm laborers, and those engaged in cutting, hauling, or driving logs. Such a classification of employees is not unreasonable. (Dirken *v.* Great Nor. Paper Co., 86 At. 320, Me., April 5, 1913.) A city ordinance requiring public moving van drivers to keep a record of the places from and to which and the persons from whom any furniture is moved by them and to file weekly statements of such transactions is a valid exercise of the police power (Lawrence *v.* Connolly, 141 N. W. 623, Mich., May 28, 1913). In Missouri, the constitution prohibits the legislature from abridging or bartering away its police power (Art. 12, Sec. 5). The provision was applied in Tranbarger *v.* Chic. & A. Ry. (156 S. W. 694, Mo., May 10, 1913). It is a proper exercise of the police power to enact that no minor or woman shall be required to work between fixed and traversing parts of any machine while it is in motion by the action of steam, water, or other mechanical power (Stricklen *v.* Combe Printing Co., 155 S. W. 829, 249 Mo. 614, April 8, 1913). It is within the police power of the state to authorize a city to fill lots within its limits so as to prevent a nuisance thereon and to charge the expense against the lots thus improved (Palmberg *v.* Kinney, 132 Pac. 538, Ore., May 20, 1913). It is also a valid exercise of this power for a city to prohibit the burning of bricks within residential districts (*Ex parte* Hadacheck, 132 Pac. 584, Cal., May 15, 1913).

A very drastic exercise of the police power has been held constitutional in New York. Section 183 of the Sanitary Code of New York City makes it a misdemeanor for any person to receive or have in his possession any receptacle used in the transportation and delivery of milk or cream which has not been washed and cleansed immediately after emptying. The ordinance was construed to mean "receive *and* have in his possession." Thus construed, it makes the emptier of the receptacle liable for a misdemeanor if he fails to cleanse it promptly; and it makes the owner of the receptacle so liable if he retains it without promptly cleansing it. (People *v.* Frudenberg, 209 N. Y. 218, . . . N. E. . . ., 50 *N. Y. Law Journal*, Oct. 21, 1913.) The same court has upheld as a valid exercise of the police power a statute which punishes criminally the sale of adulterated milk unless it is labeled as such; which defines milk as adulterated when part of the cream has been removed therefrom, and which declares that "all adulterated milk shall be deemed unclean, unhealthy, impure, and unwholesome" (People *v.* Abramson, 208 N. Y. 138, 101 N. E. 849, 1913).

It has been held that a state is acting quite within its police power in enacting a law requiring all flagmen on railroad trains to have had one year's experience as brakemen. Such a statute does not invade any rights, privileges, or immunities secured by the Federal Constitution. (Simpson *v.* Geary, 204 Fed. 507, March 4, 1913, upholding Arizona Laws 1912, Ch. 16, Sec. 8.)

Religious Liberty. — The constitutional guaranty on this subject does not exempt a regularly ordained minister of the National Astrological Society from criminal liability for violating a statute against fortune telling, even though the principles of

religion laid down by that society include the practice of casting and reading horoscopes. Religious opinions and beliefs cannot be interfered with constitutionally, but harmful practices may be prohibited. (State *v.* Neitzel, 69 Wash. 567, 125 Pac. 939, 43 L. R. A. N. S. 203, Aug. 21, 1912.)

Supremacy of Federal Law.—This was reasserted in McDermott *v.* Wisconsin (228 U. S. 115, 33 Sup. Ct. 431, April 7, 1913), holding void a Wisconsin statute which required corn syrup to be branded in a different way from that required by the Federal Pure Food Act:

> The state may not, under the guise of exercising its police power or otherwise, impose burdens upon or discriminate against interstate commerce, nor may it enact legislation in conflict with the statutes of Congress passed for the regulation of the subject, and if it does, to the extent that the state law interferes with or frustrates the operation of the acts of Congress, its provisions must yield to the superior Federal power given to Congress by the Constitution.

The supremacy was reasserted in U. S. *v.* Chandler-Dunbar Co. (229 U. S. 53, 33 Sup. Ct. 667, May 26, 1913) and Lewis Blue Point Oyster Cultivating Co. *v.* Briggs (229 U. S. 82, 33 Sup. Ct. 679, May 26, 1913), holding that the owners of land under navigable waters are subject to the dominant right of the Federal Government to use it in any way appropriate for improving navigation; also in St. Louis & San Francisco Ry. *v.* Seale (229 U. S. 156, 33 Sup. Ct. 651, May 26, 1913), holding that where the Federal Employers' Liability Act is applicable, it supersedes and excludes from operation a state statute on the same subject. This topic is discussed fully and with great ability by Mr. Justice Hughes in the Minnesota Rate Cases (230 U. S. 352, 33 Sup. Ct. 729, June 9, 1913), the Missouri Rate Cases (230 U. S. 474, 33 Sup. Ct. 975, June 16, 1913), and Southern Pac. Co. *v.* Campbell (230 U. S. 537, 33 Sup. Ct. 1027, June 16, 1913); also by Chief Justice White in Home Tel. & Tel. Co. *v.* Los Angeles (227 U. S. 278, 33 Sup. Ct. 312, Feb. 24, 1913), holding that Federal courts had jurisdiction of a suit brought to enjoin a municipality from enforcing an ordinance fixing telephone rates on a confiscatory basis.

Unconstitutional Statutes Are Inoperative.—This doctrine has been reiterated in Chicago, Ind. & L. Ry. *v.* Hackett (228 U. S. 559, 33 Sup. Ct. 581, May 5, 1913). Accordingly, the Federal Employers' Liability Act of 1906 did not operate to suspend state statutes on the same subject, nor was it any indication of a purpose by Congress to regulate the subject of employers' liability. That statute was never a law. Even though the objections to a statute that rendered it unconstitutional are removed by subsequent legislation, it remains void. One reason why vitality cannot be imparted to it is that it might have an entirely different effect from that originally intended. (Atkinson *v.* Southern Ex. Co., 78 S. E. 516, S. C., May 14, 1913.)

NON-CONSTITUTIONAL LAW

Anti-Trust Acts.—The Sherman Act was applied in Standard Sanitary Mfg. Co. *v.* U. S. (226 U. S. 20, 33 Sup. Ct. 9, Nov. 18, 1912) to cover agreements between enameled ware manufacturers, who had been independent and competitive, by which they were combined and were subjected to certain rules and regulations limiting the output and sales of their products, the persons to whom they would sell and the prices at which their vendees should sell (*A. Y. B.*, 1912, pp. 238, 240). Under these regulations the trade was practically controlled from producer to consumer. Such a scheme transcended what was necessary to protect the patents owned by members of the combination and violated the Sherman law. This law was referred to as "a limitation of rights; rights which may be pushed to evil consequences and therefore restrained. . . . The law is its own measure of right and wrong, of what it permits, or forbids, and the judgment of the courts cannot be set up against it in a supposed accommodation of its policy with the good intention of the parties, and it may be of some good results." This case was followed in U. S. *v.* Pacific & Arctic Co. (228 U. S. 87, 33 Sup. Ct. 443, April 7, 1913), holding that while a carrier may select its through connections, it will be guilty of violating the Sherman Act if its agree-

ments for connections are made not from natural trade reasons, but with a view to restrain trade and obtain a monopoly of traffic between given points.

The Anti-Trust Act has been held inapplicable to pipe lines owned by oil-producing companies and used by them for the transportation of their own oil. Private pipe lines, the court said, "separately owned by dealers in oil or refineries, and used by them in the private business in which each is separately engaged, cannot be a monopolistic possession. How does the possession of a private pipe line by one of many oil producers or dealers take from the others any privilege or opportunity which is rightfully theirs, or which they are justly entitled to share with the more fortunate owners?" (Prairie Oil & Gas Co. *v.* U. S., 204 Fed. 798, March 11, 1913.)

The Sherman Act does not apply to a combination of non-competing business groups; and its purpose is not to reduce all manufacture to isolated units of the lowest degree. Hence, the consolidation into a single company of three corporations, one of which made 60 per cent. of all the lasting machines sold in the United States, another 80 per cent. of all the welt-sewing and outsole-stitching machines, and the third 70 per cent. of all the heeling machines and 80 per cent. of all the metallic fastening machines, was not a violation of the Act. The success of the new company, as of the several groups before their combination, was due to the superiority of the several patents and the monopoly thus secured by the patent laws. (U. S. *v.* Winslow, 227 U. S. 202, 33 Sup. Ct. 253, Feb. 3, 1913.)

State legislation copied after the Sherman Act is becoming common, as was pointed out above (see *Legislative Tendencies*). When confined to intrastate commerce, its constitutionality has been affirmed in Central Lumber Co. *v.* South Dakota (226 U. S. 157, 33 Sup. Ct. 66, Dec. 2, 1912, affirming South Dakota *v.* Central Lumber Co., 24 S. D. 136, 123 N. W. 504, 42 L. R. A. N. S. 804).

Assault and Battery.—A person in his own dwelling house, or castle, is not bound to retreat when attacked, nor wait until he is threatened with great bodily harm, before using force in his defense. He may act as soon as he is attacked, and if he uses only so much force upon the body of his assailant as is reasonably necessary to his defense, he is not guilty of assault and battery. (Shires *v.* Boggess, 77 S. E. 542, W. Va., Feb. 25, 1913.) A police officer is guilty of assault who without a warrant arrests for drunkenness a person who is not drunk. Such liability is one of the ordinary risks of the ministerial officer. (Eldredge *v.* Mitchell, 214 Mass. 480, 102 N. E. 69, May 22, 1913.)

Attractive Nuisances. — This doctrine was pushed unreasonably far, it is submitted in Sandeen *v.* Tschider (205 Fed. 253, April 15, 1913), where a railroad contractor was held liable in damages to a trespassing boy, who picked up a highly explosive cap and exploded it, with a mangled hand as the result. In Weik *v.* Southern Pac. Co. (132 Pac. 775, Cal., April 17, 1913), the attractive nuisance was an unguarded turn-table; the defendant was held liable for injuries received by a trespassing boy of ten while playing with it. The doctrine was held not applicable in a case where a boy was drowned in a culvert of hot sulphur water which ran along a city street (Charvoz *v.* Salt Lake City, 131 Pac. 901, Utah, April 28, 1913). A similar holding is found in McDermott *v.* Burke (256 Ill. 401, 100 N. E. 170, December, 1912), the court declaring that a property owner is not liable for maintaining a dangerous thing for his own use, which could only be found by children when going upon his premises as trespassers.

Bankruptcy.—An important adjudication under the Bankruptcy Act of 1898 as amended in 1903 is that of Friend *v.* Talcott (228 U. S. 27, 33 Sup. Ct. 505, April 7, 1913, affirming 179 Fed. 676, 103 C. C. A. 80, 43 L. N. A. N. S. 649). A creditor who unsuccessfully opposes a bankrupt's discharge on the ground that the debt was fraudulently contracted and who proves his claim and receives a dividend thereon does not thereby waive his right to sue in tort for the balance of the debt, nor subject himself

to the doctrine of *res adjudicata* as to the tortious character of the transaction. The court declines to discuss "what constitutes an election and waiver, in the general sense," and confines its decision to the question "whether there was a waiver or election under and for the purposes of the bankrupt law."

It is now settled that the trustee of a bankrupt only takes the surrender value at the time of the filing of the petition of insurance policies on the bankrupt's life, and that the bankrupt, his personal representative or assigns will take the balance (Burlingham *v.* Crouse; Everett *v.* Judson; Andrews *v.* Partridge, 228 U. S. 459, 474, 479, 33 Sup. Ct. 564, 568, 570, April 28, 1913). "The same person, acting in different capacities, may be the giver and receiver of a fraudulent preference, as when a trustee of several trusts transferred property to one of the trusts to which he was indebted" (Clarke *v.* Rogers, 228 U. S. 534, 33 Sup. Ct. 587, May 5, 1913). A debt contracted by false representations of the bankrupt that he owned certain property is not released by the bankrupt's discharge (Dilley *v.* Simmons Nat. Bank, 158 S. W. 144, Ark., May 19, 1913). Nor is a claim for alimony against the bankrupt released even though reduced to judgment in a state other than that in which the alimony was decreed (*In re* Williams, 208 N. Y. 32, 101 N. E. 853, March 25, 1913). A debt not dischargeable because created by the bankrupt's misappropriation while acting in a fiduciary capacity is limited to cases of special trusts, and does not include a debt due from an agent or commission merchant (Am. Ag'l. Chem. Co. *v.* Berry, 87 At. 218, Me., July 1, 1913; Inge *v.* Stillwell, 127 Pac. 527, 42 L. R. A. N. S. 1093, 88 Kan., 33 November, 1912). A claim for damages arising out of a libel against the bankrupt is no part of his estate; it is peculiarly personal and not assignable (Irion *v.* Knapp, 60 So. 719, 43 L. R. N. A. S. 940 with note, Jan. 20, 1913).

Comparative Negligence. — Under this doctrine, if plaintiff's negligence is comparatively slight and that of defendant gross, the plaintiff may recover full damages. Such was not the rule of the common law, which refused to weigh or apportion the concurring negligence of plaintiff and defendant. (St. Louis & S. F. Ry. *v.* Elsing, 132 Pac. 483, Okla., May 6, 1913; Mann Bros. *v.* City of Henderson, 154 Ky. 154, 156 S. W. 1063, May 29, 1913.) It was adopted in the Federal Employers' Liability Act of 1906, but modified in the Act of 1908 (Southern Ry. Co. *v.* Hill, 139 Ga. 549, 77 S. E. 803, Feb. 28, 1913). With similar modification, the doctrine has been adopted by various state legislatures: *cf.* Marchionne *v.* Maine Feldspar Co. (86 At. 34, 109 Me. 585, March 12, 1913, applying L. 1909, Ch. 258, Sec. 4); Moore *v.* Minn. & St. L. Ry. (142 N. W. 152, Minn., June 13, 1913, applying Ia. Code 1907, Sec. 2071); Pope *v.* St. L. & S. W. Ry. (155 S. W. 1175, Tex., April 23, 1913, applying Rev. Civ. St. 1911, Art. 6649).

Construction of Statutes. — As a rule, the construction put upon a state statute by the highest court of the state will be accepted by the Federal judiciary (Chic. Ind. & L. Ry. *v.* Hackett, 228 U. S. 559, 33 Sup. Ct. 581, May 5, 1913). While the courts are not bound to adopt the construction placed upon a statute by public officers charged with its execution, such construction is persuasive with the courts, where the meaning is doubtful (Folk *v.* City of St. Louis, 157 S. W. 71, Mo., May 20, 1913).

Notwithstanding the belief on the part of many people that the courts take real delight in invalidating statutes as unconstitutional, the law reports show that judges invariably act upon the presumption that a statute is constitutional; and they require its assailant to show clearly its violation of a constitutional provision; *cf.* Realty Inv. Co. *v.* City of Mobile (61 So. 248, Ala., Feb. 4, 1913), Gardner *v.* Ray (154 Ky. 509, 157 S. W. 1147, June 20, 1913), Painter *v.* Mattfeldt (119 Md. 466, 87 At. 413, Jan. 17, 1913), People *v.* Bradley (207 N. Y. 592, 101 N. E. 766, March 25, 1913), Pac. Milling & El. Co. *v.* City of Portland (133 Pac. 72, Ore., June 24, 1913). But a court will not read words into a statute, even to save it (Mellen Lumber Co. *v.* Industrial Com-

mission, 142 N. W. 187, Wis., May 31, 1913). A statute which is open to two constructions should receive the one which renders it consistent with the principles of the common law rather than the one which would destroy a common law protection of private rights (Ekern *v.* McGovern, 142 N. W. 595, Wis., June 2, 1913).

Contempt Proceedings. — The hue and cry often indulged in against proceedings for contempt and the noisy demands for a change in existing rules upon the subject find little excuse in the decisions of 1913. No one should find fault with a court for summarily punishing, as for contempt, the custodian of a prisoner who lied to the court (People *v.* Gard, 102 N. E. 255, 259 Ill. 238, June 18, 1913); or a witness who to evade service of a subpoena in a murder case absconds and conceals himself (Aaron *v.* State, 62 So. 419, Miss., June 30, 1913); or a newspaper proprietor who, while a divorce case is pending, prints an article seriously reflecting upon the trial judge (*Ex parte* Nelson, 157 S. W., 794, Mo., June 2, 1913); or the manager of an insolvent corporation who pays a creditor from the company's funds after an order appointing a receiver for the benefit of creditors (Camden *v.* Virginia Safe Dep. & T. Co., 78 S. E. 596, Va., June 12, 1913); or any other person who deliberately violates a court order (Solano Aquatic Club *v.* Superior Court, 131 Pac. 874, Cal., April 4, 1913).

The rule that the fact of an injunction being improperly granted will not affect contempt proceedings to punish defendant for violating it was applied in Weidner *v.* Friedman (157 S. W. 56, 42 L. R. A. N. S. 1041, 126 Tenn. 677, Nov. 23, 1912). But if the court is without jurisdiction to grant the injunction, its disobedience is not a contempt (People *v.* McWeeny, 259 Ill. 161, 102 N. E. 233, 1913). The distinction between civil and criminal contempts is discussed in Bridgess *v.* State (132 Pac. 503, Okla., May 31, 1913), and *In re* Kahn (204 Fed. 581, April 14, 1913).

An interesting example of contempt of court is afforded by *In re* Maury (205 Fed. 626, May 5, 1913). An attorney was fined $500 for intimating to the jury that he did not expect fair treatment for his client from them, and this punishment was held on appeal not to have been excessive, unusual or cruel.

Contributory Negligence. — This is no longer a bar to a servant's action against his master under the Federal Employers' Liability Act. If the servant is within the protection of the statute and the causal negligence of his harm is partly attributable to him and partly to his employer, he cannot recover full damages, but only a proportional amount bearing the same relation to the full amount as the negligence attributable to the employer bears to the entire negligence attributable to both. (Norfolk & Western Ry. *v.* Earnest, 229 U. S. 114, 33 Sup. Ct. 654, May 26, 1913.)

Extradition. — Several important questions under this heading were disposed of in Charlton *v.* Kelly (229 U. S. 447, 33 Sup. Ct. 945, June 10, 1913). A writ of *habeas corpus* in extradition proceedings cannot be used as a writ of error. Such a proceeding is not a trial. The construction of a treaty by the political department of the Government is entitled to great weight, though not conclusive upon the judiciary. A government can waive violations of a treaty by the other party and it remains in force until formally abrogated.

It seems clear and has been judicially declared that the Fifth and Sixth Amendments, providing that no person shall be held to answer for an infamous crime except on the presentment of a grand jury, and that one accused of crime must be confronted with witnesses, have no application to proceedings for extradition to foreign countries (*Ex parte* Le Mantia, 206 Fed. 330, June 10, 1913).

Employers' Liability.—The common-law rules governing controversies growing out of the relation of master and servant have been modified by statutes to a great but varying extent. In Alabama, if the personal representative of a servant brings action for the servant's death under one statute (Code 1907, Sec. 3912) he is limited to compensatory damages, while if he brings it under another (Code 1907, Sec. 2486) he recovers punitive damages only (Citizens' Light, H. & P. Co. *v.* Lee, 62 So. 199, Feb.

13, 1913). A recent decision in Connecticut is peculiarly interesting, because the court was compelled to construe and apply the statute of Connecticut (Pub. Acts 1903, Ch. 193), a statute of New York (Consolidated Laws, Ch. 39, Sec. 49) and the Federal Employers' Liability Act (1908, Ch. 149, 35 Stat. 65 as amended); the case was Farley *v.* N. Y., N. H. & H. Ry. (87 Conn., 87 At. 990, July 25, 1913). Michigan has eliminated the doctrine of assumption of risk from fellow servants' negligence in the case of common carriers and also of risks due to the master's violation of a statutory duty (Fernette *v.* Père Marquette Ry., and Quick *v.* Detroit & M. Ry., 141 N. W. 1084 and 631, May 28 and May 29, 1913).

The constitutionality of the New Jersey Employers' Liability Act (P. L. 1911, p. 136) was upheld and several of its provisions applied in Sexton *v.* Newark Dist. Tel. Co. (86 At. 451, N. J. Sup. Ct., Feb. 25, 1913). The Workmen's Compensation Act of Washington has been held applicable to labor contracts entered into before its enactment. It is a valid exercise of the police power and neither abridges nor delays the obligation of prior contracts, though it may render less valuable certain contracts between individuals. Such was the effect in this case, as it compelled a contractor to pay into the accident fund provided by the statute sums which he was under no liability to pay when he made his contract (State *v.* City of Seattle, 132 Pac. 45, Wash., May 6, 1913). The same statute has been held applicable to workmen employed in interstate commerce by water, in the absence of Congressional legislation on the subject (Stoll *v.* Pac. Coast S. S. Co., 205 Fed. 169, April 28, 1913).

In Texas, the common-law rule as to risks assumed by the servant has been qualified by relieving him from giving notice of defects or danger where a person of ordinary intelligence would have continued in service with knowledge of such defects or danger (Tex. & Pac. Ry. *v.* Harvey, 228 U. S. 319, 33 Sup. Ct. 518, April 14, 1913, affirming 184 Fed. 990 and following Houston & Tex. C. Ry. *v.* Alexander, 102 Tex. 497).

Notwithstanding the legislation upon this topic, many cases still arise in which common-law doctrines are applied. A house servant while being taken to church in her employer's automobile pursuant to his contract with her is not a fellow servant with the chauffeur. It was no part of her duty as servant to go to church. (O'Bierne *v.* Stafford, 87 Conn., 87 At. 743, July 25, 1913.) "The act of a railroad brakeman in attaching a torpedo, intrusted to him for signal purposes, to a personal note and throwing it to the ground on the right of way near the home of a woman in whom he was interested was not within the scope of his employment, and the company was not liable for injury done by the explosion of the torpedo, to the woman." The court added that it is the judicial tendency to solve doubtful questions as to the scope of employment against the master. (Johnson *v.* Chic., R. I. & P. Ry., 141 N. W. 430, Ia., May 15, 1913.)

The liability of combinations of strikers for damage inflicted upon their former masters is the subject of a very full discussion in Hitchman Coal & Coke Co. *v.* Mitchell (202 Fed. 512, Dec. 23, 1912), a case growing out of the West Virginia coal riots.

Federal Employers' Liability Act.—It is now settled by several decisions of the Supreme Court that this Act is intended only to compensate the surviving relatives of the deceased employee for the actual pecuniary loss resulting to the particular person or persons for whom an action is given. The jury must apportion the pecuniary interest, which each beneficiary had in the deceased's life, and must exclude any recovery in behalf of any one who fails to show a pecuniary loss. (Gulf, Colo., etc., Ry. *v.* McGinnis, 228 U. S. 173, 33 Sup. Ct. 426, April 7, 1913.) Such loss does not include recompense for grief or wounded feelings, or deprivation of conjugal society and companionship (Mich. Cent. Ry. *v.* Vreeland, 227 U. S. 59, 33 Sup. Ct. 192, Jan. 20, 1913). Nor does it include the loss of society and companionship of a son to a parent (Am. Ry. of Porto Rico *v.* Didricksen, 227 U. S. 145, 33 Sup. Ct. 224, Jan. 27, 1913).

Injunction.—The dread of government by injunction seems to be subsiding. Indeed, legislative authority for its use to prevent conduct which is punishable criminally is now quite extensive, as shown by the Red Light Acts, already referred to under *Legislative Tendencies* (*cf.* L. of Minn., Ch. 562).

Most of the injunctions sought during the year were for the protection of property from waste (Pardee *v.* Camden Lumber Co., 70 W. Va. 68, 73 S. E. 82, 43 L. R. A. N. S. 262); for the protection of owners of franchises from unlawful interference by rivals (Vallejo Ferry Co. *v.* Solano Aquatic Club, 131 Pac. 864, Cal., May 3, 1913); to prevent levying a tax illegally imposed (Gill *v.* Board of commissioners, 160 N. C. 176, 76 S. E. 203, 43 L. R. A. N. S. 293, Nov. 12, 1912); to prevent the unlawful removal of the dead from their graves (Ritter *v.* Couch, 76 S. E. 428, 42 L. R. A. N. S. 1216, Oct. 29, 1912); and to prevent strikers from forcibly and riotously destroying the business of their former employers, or intimidating new employees (Fortney *v.* Carter, 203 Fed. 454, March 8, 1913). The last-named injunction would have been justified, even under the progressive statute of Montana, which declares that "an injunction cannot be granted in labor disputes under any other or different circumstances or conditions, than if the controversy were of another or different character" (L. 1913, Ch. 28).

Current decisions reiterate the doctrine that an injunction cannot be invoked to decide an academic question, but may be brought only by one who shows that his personal or property rights demand protection by means of this extraordinary writ (Bellarts *v.* Cleeton, 132 Pac. 961, Ore., May 27, 1913). Also that it cannot be invoked to restrain another in the exercise of political rights unless clearly permitted by statute (People *v.* McWeeney, 259 Ill. 161, 102 N. E. 233, June 18, 1913). While a criminal prosecution will not be enjoined, municipal authorities may be prohibited from attempting to enforce by criminal prosecutions a void ordinance when such prosecutions will destroy or impair property rights (Board of Commissioners *v.* Orr, 61 So. 920, Ala., April 10, 1913).

Rule 73 of the new equity rules of the Federal Supreme Court provides as follows:

> No preliminary injunction shall be granted without notice to the opposite party. Nor shall any temporary restraining order be granted without notice to the opposite party, unless it shall clearly appear from specific facts, shown by affidavit or by the verified bill, that immediate and irreparable loss or damage will result to the applicant before the matter can be heard on notice.

The Special Committee of the American Bar Association to Suggest Remedies for Delay and Unnecessary Cost in Litigation reported at the last meeting of the Association adversely to bills which had been introduced into Congress at variance with this rule. The report also states that from November, 1902, to Jan. 1, 1913, only 26 injunctions were granted by the Federal Courts in labor cases, while 704 issued in other controversies. The explanation of this report by the chairman of the committee, and the discussion which followed at the Montreal meeting of the American Bar Association were interesting and instructive. It seemed to be the consensus of opinion that the rules governing injunctions in disputes between labor unions and employers should be the same as those governing all other cases. Accordingly the Association directed the Committee to oppose all legislation exempting parties to a labor dispute from the liability to injunctive process that rests upon other litigants, and also to oppose legislation prohibiting the granting of injunctions by Federal courts against state officials who are attempting to enforce state laws which are assailed as unconstitutional. Under the equity rule quoted above, notice must be given of application for such injunction, and it is proposed that this notice shall be given to the attorney-general of the state whose legislation is attacked.

Joint Stock Companies.—Although these associations are partnerships as distinguished from corporations, they have long enjoyed a semi-corporate standing. It is entirely competent, therefore, for Congress to treat them as legal entities for the purpose of bringing them under the Act "to reg-

ulate commerce" (24 Stat. 379, Ch. 104 L. 1887), and subjecting them as artificial persons to criminal liability for a violation of such Act. This Congress has done by that Act as amended in 1903 (32 Stat. 847), 1906 (34 Stat. 584), and 1910 (36 Stat. 539). (United States *v.* Adams Express Co., 229 U. S. 381, 33 Sup. Ct. 878, June 9, 1913.)

Libel and Slander. — A newspaper publication falsely purporting to be written by plaintiff, which describes an absurd and improbable venture of the writer, is an actionable libel upon him, as calculated to hold him up to ridicule and contempt (D'Almonte *v.* N. Y. Herald Co., 154 App. Div. 453, 139 N. Y. Supp. 200, affirmed 208 N Y. 596, April 29, 1913).

In case of slander which is actionable *per se*, damages may be given for mental anguish and consequent sickness caused by the slanderous language. If a wife is the victim of such defamation and the husband is deprived of her society and services by reason of her mental and physical suffering, he may recover damages therefor. (Garrison *v.* Sun Printing & Pub. Asso., 207 N. Y. 1, 100 N. E. 430, April 17, 1913.) That part of the opinion which undertakes to explain the earlier New York cases holding that damages are not recoverable for mental distress and physical pain due to slanderous statements not actionable *per se* is not very convincing, but it probably indicates present judicial dissatisfaction with the earlier decisions.

The disposition of courts to sustain the right to publish true accounts of proceedings in which the public have a legitimate interest is shown by Parsons *v.* Age-Herald Co. (61 So. 345, Ala., Feb. 6, 1913), holding that a newspaper is not answerable in damages for libelous statements printed by it in reporting the action of a grand jury.

Defamatory statements will be privileged conditionally if made in good faith in reference to a matter in which the person making it is immediately interested, and for the purpose of protecting his interest in the belief that it is true and without any sinister motive (Christopher *v.* Akin, 214 Mass. 332, 101 N. E. 971, May 19, 1913). Privileged defamation should be distinguished from fair comment on candidates for public office (Walsh *v.* Pulitzer Pub. Co., 157 S. W. 326, Mo., May 20, 1913, a case in which plaintiff's fitness for office was scathingly criticised without actionable liability); or on the condition of plaintiff's packing house and its methods of doing business, where these are matters of public interest (Schwarz Bros. Co. *v.* Evening News Pub. Co., 87 At. 148, N. J., June 9, 1913).

The publication of a full, fair, and accurate account of judicial proceedings will not subject the publisher to an action for libel, though it includes a deliberately false statement by counsel which is defamatory of a party to the proceeding. It is for the best interests of society that judicial proceedings be open to the public and as the great majority of people cannot attend the sittings of court, it is in the public interest that newspapers should be allowed to publish accounts of proceedings. The only limitation upon such publication is that they shall be full, fair, and impartial. (Lee *v.* Brooklyn Union Pub. Co., 209 N. Y. 102, . . . N. E. . . ., 50 *N. Y. Law Journal*, 495, Oct. 21, 1913, affirming 151 App. Div. 924.) While this decision is based on Sec. 1907 of the Code of Civil Procedure, that section is treated as declaratory of the common law.

Negotiable Instruments. — An important question in the law of negotiable paper has been decided recently by the New York Court of Appeals. It is this: Can the drawer of a draft, who has paid the same to a *bona fide* holder for value, relying in part upon purported bills of lading attached by the drawer to the draft but not mentioned therein, on discovering that the bills of lading are forgeries, recover back the moneys so paid from the payee or indorsee, who has neither guaranteed the genuineness of said instruments nor been aware of their fraudulent character? The question was answered in the negative. (Springs *v.* Hanover Nat. Bank, 209 N. Y. 224, 102 N. E., 50 *N. Y. Law Journal*, 475, Oct. 21, 1913.)

The rule in the Uniform Negotiable Instruments Act that a bill or

note is not rendered non-negotiable by a provision that if it is not paid at maturity the maker agrees to pay the costs of collection or an attorney's fee, has changed the law of Missouri on this point but it has not changed the legal rule as to the validity of such a provision (Mechanics' American Nat. Bank *v.* Coleman, 204 Fed. 24, Feb. 10, 1913). Upon this point, the decision is in accordance with the view expressed by the draftsman of the Act. He has declared that the object of the statute was not to validate such a provision but only to prevent its affecting the negotiability of the instrument. Whether such a provision is valid or not, according to the decision above cited, is a question of general law upon which the Federal courts are not bound to follow state decisions. A similar provision was held valid in R. S. Oglesby Co. *v.* Bank of New York (77 S. E. 468, Va., March 13, 1913), the court treating the note as a New York contract, enforceable under the law of that state, and not repugnant to the public policy of Virginia.

An indorsement to A or B in the alternative does not render the instrument non-negotiable, and either A or B may further negotiate the instrument (Page *v.* Ford, 64 Ore., 131 Pac. 1013, April 29, 1913, applying the Uniform Negotiable Instruments Act).

Under the Wisconsin version of the Uniform Negotiable Instruments Act, even a holder in due course of negotiable paper cannot enforce it against a maker who signed it when so drunk as not to know what he was doing (Green *v.* Gunsten, 153 Wis. 413, 142 N. W. 261, May 31, 1913). A like ruling has been made in New York against a holder in due course, of a negotiable note void for usury (Crusins *v.* Siegman, 142 N. Y. Supp., Sup. Ct. Special Term, June, 1913).

The Supreme Court of Massachusetts has found it necessary to reiterate the doctrine that the true relation of parties to a negotiable instrument may be shown by oral evidence in actions between them to determine their respective obligations. Accordingly, when an agreement is shown between indorsers fixing their respective liabilities, their rights, one against the other, depend upon that agreement and not on the order in which their signatures appear. (Shea *v.* Vahey, 215 Mass. 80, 102 N. E. 119, May 24, 1913.)

Partnership as an Entity.—The Supreme Court declines to commit itself on this vexed question, but unhesitatingly declares that partnership debts are debts of the members of the firm, and that the individual liability of the members is not collateral like that of a surety, but primary and direct. It therefore sustained an order, directing the separate estate of a member of a firm which had been adjudged a bankrupt, to be turned over to the trustee for administration, though his partner had not been adjudged a bankrupt (Francis *v.* McNeal, 228 U. S. 695, 33 Sup. Ct. 701, May 26, 1913). This practice was followed in a recent District Court case, though the foregoing decision was not cited. The only way in which a non-bankrupt partner can prevent his individual estate from being administered in the bankruptcy proceeding of the firm is by paying off the firm debts. (*In re* Samuels & Lesser, *ex parte* Quinn, 207 Fed. 195, July 12, 1913.)

Patentees' Rights.—It is now settled that a patentee cannot by notice attached to the patented article limit the price at which a sale thereof may be made by one who has acquired an absolute title thereto (Bauer *v.* O'Donnell, 229 U. S. 1, 33 Sup. Ct. 616, May 26, 1913). A retailer, who sold Sanatogen for less than $1.00 a bottle in violation of the patentee's notice affixed to the bottle was held not to have infringed the patent. The case was distinguished from Henry *v.* Dick Co. (224 U. S. 1, 32 Sup. Ct. 364, March 11, 1912) on the ground that the Dick Company transferred only a qualified title to the patented mimeograph machine, giving a right to use the machine only with certain specified supplies (*A. Y. B.*, 1912, pp. 241, 522).

Quasi-Negotiability of Stock Certificates.—This is brought out very clearly in Nat. Safe Dep. Co. *v.* Hibbs (229 U. S. 391, 33 Sup. Ct. 818, June 10, 1913), holding that a trusted agent of a bank who obtains possession with the consent of the bank of stock certificates, assigned in blank by the

owner can give a perfect title thereto to a *bona fide* purchaser from him, though his conduct in thus disposing of them is criminal. The Uniform Stock Certificate Act goes even further and makes certificates fully negotiable (see N. Y. L. 1913, Chap. 600, Sec. 166).

"Res Ipsa Loquitur."—The evidential value of a state of facts properly characterized by this phrase is carefully considered in Sweeny *v.* Erving (228 U. S. 233, 33 Sup. Ct. 416, April 7, 1913, affirming 35 App. D. C. 57). Such a state of facts shown by the plaintiff warrants the inference of negligence on the part of the defendant, but does not compel such an inference. It may call for explanation or rebuttal but does not shift the burden of proof from the plaintiff to the defendant. Accordingly, the fact that an X-ray burns the plaintiff does not require the X-ray operator to give affirmative proof of his freedom from negligence.

Trade Marks and Unfair Competition.—Literary property in a book cannot be protected by a trade mark. In order to sustain an infringement of a trade mark, the owner must have applied and affixed it to goods. Hence, the publisher of detective stories under the so-called trade name of "Nick Carter" acquires no rights under the trade-mark statute by registering these words as a trade mark. (Atlas Mfg. Co. *v.* Street & Smith, 204 Fed. 398, March 26, 1913.) Nor can a person acquire property in a trade mark by its registration in connection with goods, if it has been used by another so as to be identified with that other's products. Such registration of an imitated trade mark is at once a fraud upon the original user of it and of the public, and cannot be the foundation of a property right in the imitator. (Ubeda *v.* Zialcita, 226 U. S. 452, 33 Sup. Ct. 165, Jan. 6, 1913.)

When a person has acquired a property right in a trade mark, its infringement is in the nature of a trespass to property, and the intent or motive of the infringer is immaterial (W. A. Gaines & Co. *v.* Turner-Looker Co., 204 Fed. 553, May 8, 1913). The trade mark in this case was a whiskey label bearing the word "Hermitage" in a peculiar script.

If, however, the trade name is territorial or geographical or descriptive, such as "Boston Wafers," it is not susceptible of monopoly by the first user. It can with equal truth and equal right be employed by others in connection with their goods. Such others, it is true, must so use it as not to induce the public to believe that the goods which they offer are the goods of first user. To put their goods upon the market, under this trade name in such circumstances as to induce purchasers to believe they are buying the original user's goods, is unfair competition, and constitutes an actionable tort. (C. A. Briggs Co. *v.* Nat. Wafer Co., 215 Mass. 100, 102 N. E. 87, May 24, 1913.)

LEGAL PROCEDURE

The bar and the bench are agreed that the public demand for reforms in judicial procedure ought to be heeded, and so far as possible satisfied. In nearly every state the legal profession is making a determined attempt to secure a simplification of procedure, to minimize technicalities, and to secure the earliest possible termination of litigated controversies. The report of the Board of Statutory Consolidation of New York, printed in the Appendix to the *Report of the New York State Bar Association* for 1913, is a most instructive and encouraging document upon this topic. It contains a plan for the simplification of the civil practice in the courts of the state, as well as a full account of practice provisions in other states and in England. The Board was authorized by the legislature of 1913 to prepare and present a Practice Act, rules of court, and short forms, as recommended in this report.

The subject was dealt with from different angles at the Montreal meeting of the American Bar Association. Various papers were read, reports made, and discussions had which were also instructive and encouraging. The Committee on Uniform Judicial Procedure reported a bill which it had prepared pursuant to a resolution of

the Association passed in 1912 and which was introduced in the Sixty-second Congress. The bill authorizes the Supreme Court to prescribe forms and rules, and generally to regulate pleading, procedure and practice on the common-law side of the Federal courts.

The President of the American Bar Association stated in the Appendix to his Annual Address for 1913 that laws had been passed for the simplification of practice in Colorado, Indiana, Massachusetts, Minnesota, New York, North Carolina, North Dakota, and Oregon; and that in Minnesota the law has been changed so that a verdict in civil cases may be rendered on a five-sixths vote of the jury after 12 hours' deliberation, and in Ohio on a two-thirds vote.

Reported cases show that the trial courts find great difficulty in applying existing rules of evidence and that multitudes of cases are reversed by appellate courts because of errors in the admission or rejection of evidence. However, it is gratifying to discover from an examination of the digests that appellate tribunals grant fewer new trials for errors in this respect than formerly. If they are satisfied that such errors did not affect or should not have affected the verdict, they rarely grant a new trial therefor.

Dissatisfaction with existing rules of evidence has led legislatures expressly to discard them in many of the controversies arising under Workmen's Compensation Acts. It has also induced a distinguished teacher of the law of evidence, F. H. Wigmore, to try the experiment of supplanting, or at least supplementing them, with a treatise on the *Principles of Judicial Proof*. He thinks it is necessary for lawyers to acquire a scientific understanding of the principles of what may be called actual proof, as distinguished from the artificial proof now admissible under procedural rules.

CRIMINAL LAW[1]

WILLIAM E. MIKELL

Legislative Tendencies.—The more serious crimes have been so long provided against by statute, and the elements constituting them have so long ago been worked out, that we find little current legislation, and few important decisions relating to them. The significant feature of present-day legislation is the tendency to bring within the domain of the criminal law so-called social legislation. The great mass of current legislation in the criminal field is, therefore, the creating of new misdemeanors consisting in the breach of laws passed to conserve the health, comfort, and safety of the community.

Protection of Health and Safety.—Laws for the protection of health and safety have been enacted in almost every state. Iowa (314) makes it a crime to misbrand food; Nebraska (273) and Michigan (279), to misbrand, to adulterate, or to manufacture or deal in adulterated or misbranded foods; Minnesota (607), to adulterate milk or cream; Nebraska (272) makes it a misdemeanor to adulterate or misbrand drugs; Nevada (569), to manufacture or deal in such drugs or liquors. Colorado (205), California (695), Iowa (311), Indiana (581, 306), Idaho (163), Kansas (283), Delaware (459), Connecticut (1890), and Maine (300), regulate the sale or gifts of poisonous or stupefying drugs.

Idaho (301) makes it a misdemeanor to sell intoxicating liquors to drunkards, and Indiana (29) makes it a misdemeanor to drink liquor on trains. Idaho (122) has enacted a stringent law against physicians prescribing liquor, and provides for forfeiture of license and imprisonment for from one to three years for violation. North Dakota (83) prohibits all sales of cigarettes and provides a prison penalty. Minnesota (870), Indiana (643), and Idaho (519) punishes such sale to minors, and the use of cigarettes by minors.

Maine (171) requires registration of all sales of firearms, and Indiana (47) punishes by a fine of $1,000 the sale of deadly weapons to drunkards.

[1] Figures in parentheses refer to the page of the session laws of 1913.

Idaho (553) prohibits sale of explosives to minors, Illinois (257) makes a misdemeanor a sale of toy pistols so constructed as to shoot blank cartridges, and Iowa (307) makes it felony for persons under 14 years of age to carry firearms, or for any person to carry such without permit. In Kansas (404) and Illinois (426) it is a misdemeanor for a miner to have more than 25 lbs. of high explosive in a coal mine. It is a crime in Iowa (194) and Illinois (506) to neglect to equip locomotives with head lights; in Montana (240) for teachers to neglect to have fire drills in schools; in Indiana (598) to speed motor boats; in Kansas (434) to tamper with signal lights. Failure of a flagman to protect a train is a misdemeanor in Kansas (432). It is likewise a misdemeanor in Kansas (106) for persons under 14 years, or an intoxicated person, to run an automobile. Iowa (129) places in the same class a failure to observe the "law of the road." Gasoline receptacles must be painted red in Illinois (355).

Protection of Morals.—White-slave laws have been passed in Maine (96), Nevada (356), Kansas (270), and Arkansas (410). Maine (61) has enacted a stringent law against indecent liberties. Kansas (271) makes it a felony to keep a bawdy house, and a misdemeanor to solicit a male to enter such house (270). In Nebraska (201) marriage and divorce according to Indian customs are prohibited; and in South Dakota (405) intermarriage and illicit cohabitation between the Caucasian and Mongolian, African, Corean, or Malayan races are punishable with 10 years' imprisonment.

Minnesota (847) prohibits immoral dances in public halls, while South Dakota (227) makes it a misdemeanor to "do" or "to attempt to do the hoochee koochee, grizzly bear, turkey trot, snake wrestle, or bunny hug." Kansas (274) makes it a misdemeanor to sell indecent post cards. Gambling is prohibited in New Mexico (33), and book-making and pool-selling in Idaho (327). Keeping a gambling house is punished with three years' imprisonment in Arkansas (613).

Sterilization of Criminals and Defectives.—Important laws have been enacted in California (776), Kansas (525), and Iowa (209), providing for assexualization. The California law provides only for the assexualization of persons who have been twice imprisoned for a sexual crime. The Kansas law applies to habitual criminals, idiots, imbeciles, and the insane. The Iowa law includes in its provisions criminals, rapists, idiots, feeble-minded, epileptics, syphilitics, moral and sexual perverts, and diseased and degenerate persons. This statute goes further than any previously enacted. It makes it the duty of the State Board of Parole, with the managing officer and physician of each public institution entrusted with the custody of criminals, rapists, idiots, feeble-minded, imbeciles, lunatics, drunkards, drug fiends, epileptics, syphilitics, moral and sexual perverts and diseased and degenerate persons in the state, to examine annually, or oftener, into the mental and physical condition, the records and family history of the inmates of such institutions, with a view of determining whether it is improper or inadvisable to allow any of such inmates to procreate, and to judge of such matters. If a majority of these officers decide that procreation by any of such inmates would produce children with a tendency to disease, deformity, crime, insanity, feeble-mindedness, idiocy, imbecility, epilepsy, or alcoholism, or if the physical or mental condition of any such inmate will probably be materially improved thereby, or if such inmate is an epileptic or syphilitic, or gives evidence that he or she is a moral or sexual pervert, then the physician shall perform the operation of vasectomy or ligation of the Fallopian tubes. The statute further makes mandatory such operation on every convict or inmate of such institution who has been twice convicted of sexual offenses, including soliciting, or who has been twice convicted of felony. (See also XVIII, *Prevention.*)

Protection of Business.—Laws for the protection of business have been enacted in several states. California (437) and Delaware (827) have added new sections to their criminal codes, making a false statement made for the purpose of obtaining credit a crime. Maine (62) makes such false statements criminal if made in writing

and if they are made respecting the financial condition of the party making them or a firm or company of which he is a member. Indiana (16) makes oral false statements as to financial condition a crime. Indiana (626) and Maine (7) make it a crime to issue a check or order for money when the drawer has not sufficient funds or credit, and Delaware (818) to issue checks on an overdrawn account.

Fraudulent advertising is made a crime in Iowa (316), Connecticut (1672), and Indiana (625). The Iowa statute makes illegal an advertisement of any sort regarding merchandise which advertisement contains any assertion or representation which is untrue or deceptive. The Indiana statute is restricted to certain enumerated kinds of misrepresentations. Florida (417) makes it criminal to obtain with an intent to defraud anything of value as a credit or advance under a contract to perform labor, and failing, without just cause, to perform such labor or to pay for the thing received upon demand.

Indiana (263) creates the misdemeanor of selling or bartering diseased or defective horses or mules, knowing and concealing the existence of such defect. It is a felony in the same state fraudulently to remove or conceal, to injure, or sell cattle or sheep held for grazing or breeding purposes upon which there is a chattel mortgage; or for a mortgagee, not being at the time the owner of a debt secured by mortgage, to execute a release of such mortgage (600). The use of false weights and measures (284) and fraud in the sale of fertilizers (229) has been made criminal in Iowa. Fraudulent statements made in sales in bulk are made penal in Illinois (259), as are likewise sales on margin (256).

Laws Affecting Prisoners. — Laws dealing with persons convicted of crime are becoming increasingly important. South Dakota (485) and Montana (21) have enacted parole and probation laws, and Kansas (264) has added to the number of crimes for which parole is allowed. The Montana statute gives judges power to suspend sentence (except in the more serious felonies) for a first offense. South Dakota provides for parole by the Governor in cases of indeterminate sentence, and in the case where the convict has served one-half his term, but in no case unless suitable employment has been secured for the convict in some place where he will be free from criminal influences. Maine has passed an indeterminate sentence law (54). It provides that the judge shall not fix a definite term of imprisonment in sentencing a prisoner, but may fix a minimum term not less than six months and not exceeding one-half of the maximum term fixed by statute for the particular offense; and shall recommend what in his judgment would be a proper maximum sentence, not exceeding the maximum fixed by law.

Still more significant of the changing attitude of the public toward the criminal are other laws passed in Maine (128), South Dakota (179), California (919, 1010), and Kansas (524). The Maine law provides that on the discharge of a prisoner who has served his term the sheriff may supply him with money, clothing, and railroad fare, the same to be charged to the state. South Dakota provides for the purchase of real estate, the erection of farm buildings, and the purchase of implements for the suitable and healthful employment of convicts. California provides for state assistance in securing employment for discharged convicts. Kansas provides for a daily wage, of not less than 10 cents and not more than 25 cents, for work performed by convicts above their regular daily task. The amount earned is to be a fund to be paid each month to persons dependent on such convicts, or if there be no such dependent, then to be paid to the convict at the end of his term. A new note is struck by California (1010) in the addition of a new section to its criminal code. This section makes it a misdemeanor for any person knowingly and willfully to communicate to another any statement concerning any person then or theretofore convicted of a felony, and then either on parole or finally discharged, with the purpose and intent to deprive said person so convicted of employment or to prevent him from procuring the same, or with intent to extort from him any money

or property. California likewise has the distinction of being the first state to enact a law providing indemnity to persons erroneously convicted of crime. The statute limits the indemnity to $5,000. Arkansas (1014) removes the disability of felons to testify; California (1011) regulates the sale of prison-made goods; and Iowa (34) provides for the keeping of criminal statistics. Indiana (844) joins the increasingly large number of states that have substituted electrocution for hanging. (See XVIII, *Correction.*)

Unlawful Possession of Property.—Indiana (942), Iowa (310), and Missouri (415), have made a crime of what heretofore has been only a civil wrong; Iowa and Missouri make it criminal to be unlawfully in possession of an automobile belonging to another without that other's consent; Indiana extends the same principle to the use of any vehicles. Delaware (825) extends it to dogs and makes such unlawful possession larceny.

The Insanity Defense.—It is generally admitted that our law dealing with insanity as a defense for crime is in an unsatisfactory condition. An important statute has been passed by Indiana (774) in an attempt to improve the procedure in this class of cases. The statute provides that insanity must be specially pleaded in writing; that if the defendant is found not guilty in the trial, the verdict shall state whether he did the act charged, and if so whether he was sane or insane at the time; if he is found not guilty because of insanity and is still insane, he must be committed to an asylum for the criminal insane; if he is sane, but a recurrence of the attack of insanity is highly probable, the same disposition is to be made of him. He may file a petition after six months to be discharged; if this is not granted, no further petition can be made within two years.

Extradition of Witnesses.—A very important departure from existing law, and one which, if constitutional and followed by other states, will have a most wholesome effect on the administration of the criminal law, is embodied in Chapter 315 of the laws of Iowa for 1913. This law provides:

> When a petition is filed in the office of a clerk of the district court upon the relation and oath of a prosecuting attorney in another state, which, by its laws, has heretofore or may hereafter make provision for commanding persons within its borders to attend and testify in a criminal action in this state, setting forth that there is a criminal action pending in the courts of such state wherein a person residing or being within the county wherein said court is held is a material witness for the state in such action, to which there is attached a certified copy of the indictment therein, a judge of said court shall issue an order fixing a time and place for a hearing on said petition, which may be during a session of court or in vacation, and thereupon the clerk shall prepare a notice requiring the said witness to appear before the said judge at the time and place specified in said order to make defense thereto and shall deliver the same to the sheriff of said county for service upon said person.
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> All costs of said proceeding, which shall be estimated by the clerk, shall be paid to the clerk at the time said petition is filed.
>
> If it shall be shown upon said hearing that the said person is a material and necessary witness for the prosecution in said case, the court shall enter an order commanding such person to appear and testify in said cause in the court in which such criminal action is pending, at a certain named time and place, of which order the said person shall take notice.
>
> If any person on whom such order has been made, having been tendered by the party asking for the order ten cents for each mile traveled to and from such court, and the sum of five dollars for each day that his attendance is required, including the time going and returning from the place of trial, the number of days to be specified in such order, shall unreasonably neglect to attend and testify in such court, he shall be punished in the manner provided for the punishment of disobedience of any order issued from the office of the clerk of the district court, provided, however, that the laws of the state in which the trial is to be held give to persons coming into the state, under such order, protection from the service of papers and arrest.

Miscellaneous.—Florida (296) and Indiana (956) have made desertion a felony; these laws do not apply to the desertion by the wife of the husband in any event, and do not apply to the husband if the wife has been guilty of immoral conduct. Florida makes the sending of threatening letters punishable by 10 years' imprisonment; Delaware (793) makes a crime the unlawful destruction or altering of a will; Iowa (128) the failure to destroy noxious weeds; Maine (121) the trespass on improved lands with intent to destroy crops; Indiana (119) the administering of poison to animals; and Iowa (311) the desecration of the flag.

X. PUBLIC RESOURCES AND PUBLIC WORKS

PUBLIC LANDS

MORRIS BIEN

Legislation.—During 1913, in the session of Congress lasting from Dec. 2, 1912, to March 4, 1913, there were passed the usual number of bills relating to the public lands. None of them, however, was of special importance in regard to the general policy relating to the public lands.

Sales of Indian Lands.—Two important sales of Indian lands took place during the year 1913, namely, the sale of lands in the former Fort Peck Indian Reservation, Montana, and of lands in the former Fort Niobrara Military Reservation in Nebraska, and an area excluded from the Nebraska National Forest.

The Fort Peck lands cover an area of about 1,200,000 acres, of which nearly 500,000 acres are agricultural land and 700,000 acres grazing land, appraised at from $2.50 to $7 per acre. These lands were opened under the general provisions of the homestead and desert-land laws with the additional requirement of payment of the appraised value. All applications were required to be presented during a certain time in September, 1913, and on Sept. 23, 12,000 names were drawn from among the applicants. There are lands enough for a little more than 8,000 entries of 160 acres each, and there were over 40,000 applicants. Those who were successful in the drawings will be permitted to make their entries at specified times after April 1, 1914.

The lands in the Fort Niobrara Military Reservation comprised a total of about 44,000 acres, in which there were 94 tracts subject to entry of 160 acres each, and 46 tracts subject to entry of 640 acres each. The lands excluded from the Nebraska National Forest amounted to about 300,000 acres and are subject to entry in tracts of 640 acres each. Applications for these lands were to be filed during certain periods in October, 1913, and the names were drawn on and after Oct. 28, 1913. There were about 76,000 applicants for the opportunity to make about 650 entries in the restored military and forest lands, and 2,000 names were drawn. The entries are to be made at specified times after March 1, 1914. Applicants for lands in the former Fort Niobrara Military Reservation are required to pay the appraised price of the land, which ran from $1.25 to $7.00 per acre. No charge was made for the land in connection with the entries in the former Nebraska National Forest.

Water-Power Sites.—Under the Act of Congress approved June 25, 1910, a number of withdrawals of public lands were made with the view of setting apart those lands which would be valuable in connection with water-power development. After the passage of that Act there was some effort to secure the enactment of a law which would permit the utilization of these sites under proper restrictions. Congress, however, did not pass any such act and the Department of the Interior, upon consideration of the matter, decided that the Secretary of the Interior, under existing laws and his general supervisory authority over the public lands, was authorized to permit the use of these reserved power sites under appropriate conditions. Several permits of this kind have been issued, one of the most important among them being that covered by a

permit issued July 29, 1913, in favor of the International Power & Manufacturing Co., whose plant is to be located on Clark Fork or Pend d'Oreille River, Washington.

This permit and the accompanying agreement provide for the occupation of these lands under certain conditions. The company is required after the year 1923 to pay the United States certain rates of compensation per horse power, dependent upon the average price for electric energy charged to customers and consumers, the charge per horse power decreasing as the charge to consumers decreases. The charge paid to the United States per horse power will decrease much more rapidly than the charge to consumers decreases, thus offering a strong inducement to the company to lower its prices to consumers. A maximum charge to customers and consumers is provided for. The company is required to provide for the development of 50,000 horse power within three years, and the ultimate development will be 112,000 horse power. This permit is revocable at the discretion of the Secretary of the Interior and the Secretary of Agriculture, who jointly issued the permit, part of the land being public land and part being within a national forest. The rates charged under this contract are subject to revision at intervals of not less than 20 years. This agreement has been published as a Senate Document, No. 147, 63d Cong., 1st sess.

Hetch Hetchy Grant to San Francisco.—A question which has aroused much general public discussion on subjects related to the public lands is the grant by Congress to San Francisco of the use of certain lands in Hetch Hetchy Valley, Cal., for the city water supply. The Act grants necessary rights of way not exceeding 250 ft. in width that may be required, in the judgment of the Secretary of the Interior and the Secretary of Agriculture, for the construction and operation of a water-supply system, together with power houses, pole lines, roads, trails, bridges, etc., within the Stanislaus National Forest and the Yosemite National Park. Among the works to be constructed is a dam at least 200 ft. high for the storage of water on the floor of Hetch Hetchy Valley. The Act incorporates certain regulations to preserve the streams from pollution, prohibiting the depositing of refuse or other contaminating matter within 300 ft. of any reservoir or stream, and other appropriate regulations to describe the method in which the lands shall be occupied by residents, campers and others using it as a summer resort. The Act provides for furnishing a water supply for irrigation purposes to lands within two irrigation districts which must rely upon the waters of the streams affected for the water supply for the cultivation of their lands. The city is permitted to develop power by use of the waters under certain restrictions and conditions. The city is required to build roads and trails through the park, the estimated cost of which is between $500,000 and $1,000,000, to be turned over free of charge to the United States. These roads will afford access to nearly all the important points in the vicinity of this work. The city of San Francisco has purchased about 3,400 acres of land within the national park and national forest, and it agrees to turn over to the United States all the land not needed for its operations, a tract considerably more than 640 acres in extent.

This Act has been the subject of active discussion, many persons contending that the lands are not necessary for the city of San Francisco water supply, or at least not to so great an extent as to justify the interference with the Yosemite National Park, claiming that the use proposed will constitute a serious detriment to the beauty of the wonderful scenery in this portion of the park. Others claim that these works will have little or no effect upon the scenic beauty of these lands. Whatever may be the individual opinion as to the wisdom of this legislation, it may be said that Congress has not acted without full information, as both the friends and the opponents of this measure were extremely active in presenting their views, to the committees, to individual members of Congress, and to the public as well. In signing the bill on Dec. 19, President Wilson said:

I have signed this bill because it seemed to serve the pressing public needs of the region concerned better than they could be served in any other way, and yet did not impair the usefulness or materially detract from the beauty of the public domain.

He expressed the opinion that the objections of the opponents of the bill were not well founded and that the bill was, on the whole, in the public interest. (See also XXIII, *Civil Engineering.*)

Disposition of Public Lands.—The total area of public lands entered during the fiscal year ending June 30, 1913, was 15,867,222.45 acres, a decrease of about 1,290,000 acres, as compared with the area entered during the fiscal year ending June 30, 1912. The total cash receipts from the sale of public lands during the fiscal year ending June 30, 1913, were $4,287,540.67. From the sale of Indian lands there was received in addition $2,118,469.34. These figures represent a decrease of about $2,550,000, as compared with receipts for the preceding fiscal year. The area of patented lands disposed of during the fiscal year ending June 30, 1913, was 12,678,076 acres, a decrease from the preceding year of about 2,542,601 acres. Of the area patented 7,320,058 acres were taken under the homestead law.

MINERAL RESOURCES

U. S. GEOLOGICAL SURVEY

GEORGE OTIS SMITH

Range of Activities.—While the activities of the United States Geological Survey in connection with the administration of the public lands continue to embrace a constantly widening sphere, yet the work of the survey covers the whole country. General and economic geologic investigations were carried on during 1913 in 45 states and Alaska; topographic mapping was continued in 26 states, the District of Columbia, Alaska, and Hawaii; stream gauging was carried on in 42 states, Alaska, and Hawaii; work on underground waters in 19 states; and engineering studies of water utilization throughout the public domain. In addition, statistical inquiries relating to every mineral product, addressed to 62,000 producers, with the accompanying study and published discussion of the nature and extent of the mineral reserves upon which the mineral industry depends, indicate that the Survey is in close touch with the physical development of the whole country. Nearly 400 field men of the regular staff, geologists, and topographic and hydraulic engineers, and an even larger number of temporary assistants, were engaged in field work for longer or shorter periods of the year.

Growth of the Work.—A remarkable growth has characterized the Survey's work during the last six years. In personnel the net increase in that period has been 37 per cent., in correspondence 43 per cent., in distribution of reports and maps 23 per cent., and in cash receipts from sales of maps and publications 60 per cent. Notwithstanding these gains in every particular, there has been an actual net loss in appropriations for sustaining the work of the Survey. The total of the several appropriations for the fiscal year 1914 is $1,517,920, and there is no single line of the Survey's investigations that is not in need of additional financial support to meet present urgent demands.

Classification of the Public Domain.—To enable the intelligent administration of the remaining unoccupied half-billion acres of government lands on a business-like basis with constantly changing conditions, such as confront any large business, the Geological Survey is called on for more and more detailed and exact information of an economic character. To supply this information the land-classification board of the Survey is drawing more heavily and more constantly, not only upon the results of the current scientific investigations, but also upon the earlier published records and the mass of unpublished data which has been accumulating during the last 33 years. In this connection, during the fiscal year 1913 more than 2,000,000 acres of coal land were classified, valued at nearly $33,500,000, while nearly 8,000,000 acres were clas-

sified as non-coal land. The following table shows the acreage of various classes of land recommended for withdrawal under the Withdrawal Act of June 25, 1912, and the acreage recommended for restoration where field examination has shown that the land should be restored to the public domain:

	Withdrawals (Acres)	Restorations (Acres)
Coal	7,145,000	9,500,000
Oil	125,000	300,000
Phosphate	95,000	500,000
Potash	134,000	.....
Power sites	152,000	68,000
Reservoir sites	4,500	6,200
Public water reserves	4,400	.....

The total acreage to date of lands which have been classified as coal is 19,000,000 acres; 61,000,000 acres have been classified as non-coal land; 58,000,000 acres stand withdrawn as coal lands awaiting classification; 4,600,000 acres stand withdrawn as oil land; 68,000 acres as naval petroleum reserves; 3,000,000 acres as phosphate land; 130,000 acres as potash land; 2,000,000 acres as power sites; 95,000 acres as reservoir sites; and 90,000 acres as public water reserves.

Another feature of the Survey's field work is the designation of enlarged homestead lands under which as much as 320 acres of non-irrigable land may be entered by a citizen, as against 160 acres under the original homestead law. During the year 2,300,000 acres were so designated and 560,000 acres formerly designated were withdrawn.

Publications of the Survey.—The price of the standard topographic map was advanced on Jan. 1, 1913, from 5 to 10 cents apiece, and from 3 cents a copy if purchased in lots of 100 or more to 6 cents a copy for 50 or more. Nearly 600,000 of these maps were sold during the year. The maps in stock, numbering 2,200 separate sheets, cover areas representing nearly 40 per cent. of the United States. A fire in the Survey building in May slightly damaged about 175,000 geologic folios; these were immediately reduced from the regular prices of 25 or 50 cents a copy to the flat price of 5 cents, and over 60,000 were sold in the following six months.

The Survey is issuing accurate state maps on the scale of 1:500,000 as a preliminary to the international one-millionth map of the world. Maps of Alabama, Arkansas, Delaware, Georgia, Indiana, Iowa, Michigan, Minnesota, Mississippi, New Jersey, North Carolina, Ohio, Tennessee, Vermont, and Wisconsin have already been issued.

The *Mineral Resources* volume, one of the principal annual publications of the Survey, consists of 60-odd separate chapters on different industries, each of which is published and distributed as one or more "advance chapters" immediately upon the receipt of the annual statistics. Particular endeavor has been made to get such statistical reports issued promptly, and by Sept. 1, 1913, 45 of these "separates," containing final figures covering the respective industries for 1912, had been completed and distributed to the public. *Contributions to Economic Geology*, another important annual publication, also is issued in the form of "advance chapters," consists principally of short papers, many of them of a preliminary or reconnaissance character, resulting from observations incidental to regular field geologic work or field work on land classification. Of these two classes of "advance chapters," 70,000 copies were distributed during the year.

A notable publication of the year was Bulletin 537, "The Classification of the Public Lands," containing contributions by many geologists, engineers, and others engaged in the field work of classification. The publication sets forth the origin and growth of the Survey's classification work, the basis of that work in law, its administration, the procedure in original field investigation and in office study, and the disposition of field results. Another publication of note is the geologic folio covering the Niagara gorge and vicinity and the topographic map of the gorge. This folio attracted unusual attention at the recent International Geological Congress at Toronto.

A special contribution was made by the Survey to the work of the Alaska

Railroad Commission, created by the Sixty-second Congress. The Commission consisted of five members, and the Survey geologist in charge of Alaskan work was named in the statute as one of the five. Alfred H. Brooks was therefore designated by President Taft as a member and vice-chairman of the Commission. The exhaustive report of the Commission, with a specific recommendation for railroad construction, was transmitted to Congress in January, 1913 (see also VIII, *Alaska*).

STATE GEOLOGICAL SURVEYS

FRANK W. DEWOLF

Activities and Resources.—The 35 state geological surveys were especially active during 1913, collecting and disseminating information intended to promote the orderly development of mineral resources. Several surveys also had responsibility in connection with highways, soils, forests, and reclamation of wet lands. Besides having these utilitarian functions, the surveys contributed notably to pure science. A new bureau in Oregon was organized and provided with liberal funds. The Arkansas Survey received no appropriation. Altogether, the state Surveys expended approximately $475,000, and received the benefits of $140,000 additional expenditure by coöperating Federal bureaus. About 100 scientists gave full-time service for the states, and about 50 others, besides topographers and soil experts, were furnished in coöperation.

Topographic Maps.—Topographic surveys were continued in 14 states in coöperation with the U. S. Geological Survey, which shared the expense. More than 10,000 sq. miles was mapped coöperatively as a basis for geological and engineering studies.

Economic Geology.—Applied geology, of immediate value to the states, received increased attention. Most reports issued described the local mineral resources in such a way as to encourage careful investment. Economic work in the various states is summarized in the following paragraphs.

Stones and Minerals for Building Purposes and the Arts.—All of the state Surveys made investigations of stone and minerals for building, or for use in cement, concrete, road-ballast, or in the arts. Marbles and slate of western Pennsylvania, and crystalline rocks of Alabama, were especially under examination. Reports on building stone were in preparation in Minnesota, New York, and Ohio. Cement materials of Washington were described. A study of limestone and marl for agricultural uses in southern Georgia was in progress. Materials available in Iowa for road building and for concrete were tested. The limestones of Michigan were also investigated.

Clay and shale at coal mines were tested in Illinois. A study of Minnesota brick and clay industries was completed. Investigation of Pennsylvania fire clays continued. Reports on asbestos, soapstone, feldspar, and mica were in preparation in Georgia. A monograph on Michigan salt deposits and industries was in press. Investigations of glass-sand in Missouri were continued. Reports on gypsum and salt of Oklahoma were published. Lithia lands of South Dakota were examined. White rock phosphate of Tennessee was described in a preliminary paper, and a general phosphate report was in progress.

Coal, Lignite, and Peat.—Investigation of fuel resources was the most important work in several states. Study of coal resources and mining practices in Illinois was continued in coöperation with the University of Illinois and the U. S. Bureau of Mines; three reports were issued, including proximate analyses of 350 mine samples. Two folios relating to coal-mining regions were also published in coöperation with the U. S. Geological Survey, and another was in press at the end of the year. In Iowa a series of ultimate analyses of coals was completed. A report on peat deposits of Ohio was distributed, and one on the Broad-Top field of Pennsylvania was in press. Work on the lignite of North Dakota and South Dakota was continued. Tennessee coals north and south of the Tennessee Central Railroad were described and field work was finished for a report on coals of the state. Coal surveys were continued in Washington, and also in West Virginia, where six county re-

ports were published and three others were prepared.

Oil and Gas.—State surveys made extensive examinations of developed or prospective oil and gas fields. Work was continued in California. A report on southeastern Illinois was published, and three coöperative folios covering oil territory were in preparation. Michigan issued a bulletin on oil and gas resources. In the Oklahoma fields extensive coöperative work was organized and four parties were employed. A study of oil and gas was made in western Washington. Six county reports published in West Virginia had special reference to the structural relations of oil and gas.

Leakage of oil and gas into coal mines was considered at conferences between representatives of state geologists, the U. S. Bureau of Mines, and operators of oil, gas, and coal properties. It seemed likely that mine explosions accompanied by great loss of life may result from prevailing practices. A model law, providing for state inspection of drilling operations through workable coal deposits, was formulated and recommended to the legislatures of all states concerned.

Metallic Ores.—Survey of the Platoro-Summitville gold district of Colorado was made. A bulletin on iron ores of Mississippi was prepared. In Missouri experiments on the electrode potential of minerals were continued, and a report for the Aurora region was in progress. Copper prospects in Pennsylvania were investigated. Eastern Tennessee red iron ores were described in a coöperative report. A bulletin on the geology and deposits of the Covada silver-gold district in Washington was issued. Ore bodies in the Wisconsin lead and zinc region were mapped, and a magnetic survey was begun to outline new iron deposits and classify the lands of the northwestern part of the state for taxing purposes.

Detailed Areal Surveys.—Detailed areal work, involving economic resources to some extent, continued in most of the states. The work was done on quadrangle maps, or by county units, or according to the areas of particular formations. Much work was done in coöperation with the U. S. Geological Survey. An areal survey of California was begun. Coöperative reports on four quadrangles in Illinois were published and those on nine others were awaiting printing; besides, two quadrangles were surveyed. In Indiana 200 sq. miles were mapped. In Iowa 10 counties were completely or partly surveyed, and the investigation of the Pleistocene formations of northwestern Iowa was finished. In Kentucky, general areal and economic surveys were in progress. In Maryland an area of 1,000 sq. miles was mapped by county units. The pre-Cambrian in three Michigan counties was surveyed. A map of the surface formations of the north half of Minnesota was nearly finished. In Missouri, a report for one quadrangle was published, and others were in progress for three counties; in addition, coöperative reports for four quadrangles were in preparation. Surveys were progressing in Ste. Genevieve County, which displays practically all the pre-Pennsylvanian formations of the state. Work in New York included Saratoga and Schuylerville rock and post-glacial surveys; Pleistocene surveys of Mohawk and the Hudson valleys; and the Silurian region from Rochester to Niagara Falls. The geology of five quadrangles was published. In North Carolina a coöperative report on the Miocene and Pleiocene formations was in preparation. In North Dakota the surface geology of one half-quadrangle and the areal geology of 650 sq. miles in the western part of the state were mapped. The Columbus quadrangle, Ohio, was described in a report prepared for the use of students; and Lawrence County geology was studied. In Oklahoma one quadrangle was mapped in coöperation. Extensive areal and economic surveys were made in Oregon. In South Dakota four counties were mapped. In Tennessee a coöperative survey of one quadrangle was in progress. West Virginia issued elaborate reports for six counties, including maps of topography, soil, and geology; reports for three other counties were prepared. Areal work was continued in northwestern Wisconsin.

Stratigraphic and Paleontologic Geology.—A move toward coöperation in the study of stratigraphy was

made by state geologists in the Mississippi Valley. Eight states sent delegates to a field conference in Missouri in October. The U. S. Geological Survey was represented by the chief geologist. Since a great amount of work is being done on the Mississippian formations, a committee of the states was appointed to direct the interstate work and to coöperate with the U. S. Geological Survey. It is hoped that this movement will prevent conflict and unnecessary duplication.

Several states accomplished work of broad value to the science of geology. In Illinois research on the Mississippian and Silurian systems was continued; a paper on the Alexandrian series was published; and two volumes on Mississippian brachiopods were in press. In Iowa the Devonian and Mississippian were under investigation, and a report on the Aftonian mammalian fauna was completed. The Maryland Survey published three splendid volumes devoted to the Devonian. Work on the Mississippian and Devonian of Michigan was continued. The formations of the Coastal Plain in Mississippi were described. The Pennsylvanian stratigraphy of northwestern Missouri will be described in an early report. In Nebraska fairly complete remains of two mastodons of a new species and new types of smaller animals were discovered. Two notable volumes on the Eurypterida of New York were published. In Ohio large monographs on the Mississippian and Devonian, and on the Conemaugh formation were published; a study of the Waverly formation was in progress. In West Virginia a report on living and fossil flora was published. Coöperative stratigraphic investigations were continued in northwestern Wisconsin.

Miscellaneous Activity and Publications.—Annual mineral statistics were prepared in nearly all states. Bibliographies of geological and mining literature were issued in Colorado, Iowa, New Jersey, and Washington. A description of the geology of Colorado was issued for use with the state map of 1912. A base map of Missouri, on the scale of 1:1,000,000, and a geological map of Washington were in preparation. Physiographic and geographic studies were continued in several states. Educational bulletins on the northwest portion of Illinois and on the upper Illinois valley were awaiting printing. A report on the Missouri slope in western Iowa was begun. Studies of Lake Agassiz and of the Devil's Lake region in North Dakota and of the glaciation of Puget Sound in Washington were issued. Volumes on the geography and industries of Wisconsin, and on the physiography of the state, were completed. The Michigan and Wisconsin Surveys assisted the state tax commissions in the valuation of mining properties and mineral lands. Bulletins on the weeds of Iowa and on the flora of North Dakota were published. New Jersey prepared bulletins on ichnology and on prehistoric Indian villages and camps. Reports on the birds of North Carolina and Oklahoma were in progress.

Surface and Underground Water.—In many states a special bureau or the Geological Survey collected information on surface and underground water for domestic and industrial uses. In Alabama numerous analyses of water were made. In Connecticut coöperative investigation of underground water was continued. A report on the underground water of western Florida was issued. In Illinois well records were collected in cooperation, and the decrease of artesian supply in the Chicago area was investigated. Engineering plans for reclaiming overflowed land along the Embarrass River were issued. Iowa industrial waters were studied and data were collected from wells and from stream-gauging stations. A complete report on the wells of Maryland was prepared. In Michigan, water wells were studied in connection with the work on oil and gas. Investigations of underground waters in Mississippi and North Dakota were finished. Data were collected from 25 counties in Missouri. In Nebraska 150 alkaline lakes and marshes were examined, and 60 typical water samples were analyzed. Well records in New Jersey were collected, and a report on the stability of the New Jersey coast was prepared; the New Jersey Survey also directed a large expenditure for the improvement of an inlet. A re-

port on the condition of Saratoga Springs, New York, was finished. Cooperative drainage investigations were in progress in North Carolina. A study of artesian wastes was continued in South Dakota. Tennessee issued a paper on conservation of water power, and sent a full report to press. A report on the water supplies of Wisconsin was nearly completed during the year.

Soil, Forest, and Highway Investigations.—In many states the Surveys investigated soils, forests, and highways, alone or in coöperation with other bureaus. Alabama continued coöperative soil surveys, and issued a volume on economic botany. Indiana mapped 2,000 sq. miles coöperatively. In Michigan the Survey coöperated in studies of soil and forests. Thorough soil surveys of two counties in Mississippi were finished. New Jersey issued two county forest reports, and North Carolina published a report on forest fires. North Dakota completed soil mapping of one half-quadrangle and reports for two counties. Oklahoma issued circulars on trees and shrubs and began a comprehensive report on trees. A soil map was made of south-central South Dakota. A survey of one county in Tennessee was in progress, and papers were published on soil erosion, on state supervision of forestry, and on the yellow poplar. In Washington one county was surveyed. In West Virginia coöperative soil maps were issued for six counties and were prepared for three others. A volume on living and fossil flora was also published. Wisconsin continued coöperative county surveys.

A report on road and concrete materials of Iowa was finished. In Michigan all gravel and other suitable road material has been located. Road materials of North Dakota were described. In New Jersey materials for state-aid roads were tested. A paper on North Carolina public roads was issued and road statistics were compiled coöperatively.

RECLAMATION

FRED G. HARDEN

U. S. Reclamation Service.—June 30, 1912, marked the close of the first ten years of operation under the Reclamation Act. The following statistics are a summary of the results on all the projects of the Reclamation Service up to June 30, 1913:

Estimated area in projects, acres	2,983,440
Area for which works were completed, acres	1,299,956
Area irrigated (estimated), acres	721,410
Number of farms	18,472
Reservoirs, capacity, acre ft	5,051,210
Irrigation and drainage canals, miles	7,961
Tunnels, miles	22¼
Flumes, miles	74½
Levees, miles	82
Pipe lines, miles	157
Roads built, miles	697
Railroads built, miles	51
Telephone lines, miles	2,331
Transmission lines, miles	351
Power plants	12
Capacity of power plants, horse power	30,785
Volume of storage and diversion dams, cu. yds	9,523,652
Material excavated, cu. yds	99,245,768
Riprap placed, cu. yds	419,790
Paving placed, cu. yds	511,322
Concrete placed, cu. yds	1,344,908
Cement manufactured, bbls.:	
Portland	338,452
Sand	95,435
Cement used, bbls	1,533,544

There are shown in the table overleaf the net investment, the percentage completed, the estimated area included, the area to which water could be supplied, the area held by settlers under water right applications and rental contracts, and the net collections from the several projects, up to that date.

On May 28, 1913, the Secretary of the Interior announced a reorganization of the Reclamation Service by the adoption of the commission plan, the commission to consist of a chairman, a chief engineer, a chief counsel, a commissioner of operation and maintenance, and a commissioner of contracts and finances. Another lesser change was made in July by the appointment of a supervisor of irrigation, who is to devote his time to looking over the projects, investigating complaints, and advising the water users. A plan has been worked out by the Secretary of the Interior and the Secretary of Agriculture whereby each of the fifteen principal projects will be provided with an experienced

State	Project	Net Investment	Per Cent. Completed	Irrigable Lands: Estimated Total (Acres)	Irrigable Lands: Area Service Could Supply in 1912 (Acres)	Irrigable Lands: Irrigated in 1912 (Acres)	Net Collections
Arizona	Salt River	$9,641,595.53	93.7	240,000	170,000	170,000	$100,000.00
Arizona-California	Colorado River	43,709.23					
	Yuma	5,765,285.71	73.7	131,000	16,000	16,000	105,698.89
California	Orland	554,871.74	84.0	14,200	14,200	4,200	
Colorado	Grand Valley	101,415.11		53,000			
	Uncompahgre	4,780,191.11	54.9	140,000	32,000	28,000	
Idaho	Boise	6,958,350.90	52.0	243,000	200,000	57,959	
	Minidoka	4,101,817.31	90.0	118,700	111,600	93,700	413,658.10
Kansas	Garden City	380,527.20	98.0	10,677			
Montana	Huntley	886,958.50	96.0	32,405	28,805	23,744	195,262.86
	Milk River	1,004,309.63	12.0	219,557	7,800	350	
	Sun River	863,581.50	9.0	216,346	16,346	10,913	74,730.05
Montana-North Dakota	Lower Yellowstone	3,041,709.27	95.0	60,116	37,609	29,542	30,366.42
Nebraska-Wyoming	North Platte	5,438,721.92	82.0	129,270	104,511	86,378	193,348.32
Nevada	Truckee-Carson	4,571,653.62	69.0	206,000	43,761	44,929	262,632.30
New Mexico	Carlsbad	692,154.57	100.0	20,277	20,277	20,249	177,155.50
	Hondo	353,962.44	100.0	10,000		1,150	
New Mexico-Texas	Rio Grande	880,797.49	20.0	155,000	25,000	25,000	
North Dakota	Missouri River	873,896.11	50.0	26,182	12,107	12,239	12,517.25
Oklahoma	Cimarron	9,128.92					
Oregon	Central Oregon	40,391.67					
	Umatilla	1,293,667.04	80.7	25,000	17,252	13,781	196,765.70
Oregon-California	Klamath	1,990,902.24	71.0	72,000	30,000	28,087	278,024.43
South Dakota	Belle Fourche	3,083,149.11	93.0	100,000	65,852	42,479	121,261.20
Utah	Strawberry Valley	1,826,481.07	62.0	60,000			
Washington	Okanogan	556,642.31	100.0	9,900	9,900	9,837	56,783.82
	Yakima-Sunnyside	1,909,441.65	88.0	102,824	80,075	65,319	470,734.40
	Yakima-Tieton	2,962,695.82	94.0	34,613	34,613	20,613	146,454.04
	Yakima Storage	616,784.05	17.0				
Wyoming	Shoshone	3,691,608.61	50.0	164,122	41,322	22,158	193,811.04
Secondary Projects		586,992.94					
Townsite Development		15,677.85					
Indian Irrigation		306,242.22		428,500	49,200	8,920	
Miscellaneous		32,902.54					
Totals		$69,858,216.93		3,020,689	1,168,830	835,547	$3,029,204.32

agriculturist to advise the settlers, assist them in inaugurating better methods, developing better products, and creating better markets.

More attention than ever has been given during the year to making the terms of payment of building charges less burdensome to the settlers who are actually residing on and reclaiming their lands. Graduated payments are now permitted on a considerable number of the projects. During 1913 extensions of time for making payments were granted on some of the projects to water users who had cultivated and improved a certain percentage of their land. The Secretary of the Interior also issued an order permitting the payment of but one-third of the building charge assessments due Dec. 1, 1912, and delinquent if not paid by Dec. 1, 1913, provided one-half of the irrigable land has been cultivated and there are no arrears for operation and maintenance on Dec. 1, 1913. The remaining two-thirds of the assessments are to be added to the final building assessments.

In 1911 the right of the Service to make assessments for operation and maintenance was attacked in the U. S. Circuit Court for the Eastern District of Washington. Upon subsequent appeals the case went to the U. S. Circuit Court of Appeals for the Ninth Circuit, and finally to the Supreme Court of the United States, which, in May, 1913, reversed the decision of the Circuit Court of Appeals, reversing that of the Circuit Court, and sustained the right of the Reclamation Service to collect for maintenance and operation. (Swigart *et al. v.* Baker, 229 U. S. 187.)

A formal agreement was entered into during the year with the state of Oregon for an investigation of the feasibility of projects in that state. During the investigation the lands are to be withdrawn from entry by the Secretary of the Interior and sufficient water for their irrigation is to be withheld from appropriation by the state engineer. The construction of any project or unit of a project may be turned over to private capital, provided it pays the cost of the plans and specifications and agrees to construct in harmony with the plan adopted by the state to bring about the highest beneficial use of its water.

Carey Act Lands.—Up to June 30, 1912, 473,999.51 acres of Carey Act lands had been patented and applications for patents were pending for approximately 200,000 acres. It is estimated that of these amounts 340,000 acres were irrigated in 1912, and that including the private lands within Carey Act segregations that the construction under that Act has made water available for 1,200,000 acres, 50 per cent. of which was irrigated in 1912 (Senate Doc. 1097, 62d Cong., 3d sess.).

The year 1913 was no more favorable than 1912 for the construction and settlement of Carey Act projects. The financial difficulties during the summer of the banking house financing a large percentage of the construction in Idaho lead to a general retrenchment in that state, which reacted on the sale of irrigation securities of projects throughout the West. A marked falling off is beginning to occur in both the segregations applied for under the Act and the temporary withdrawals under the Act of March 15, 1910. The table over-leaf gives the segregations and withdrawals by states for the fiscal year ending June 30, 1912, as well as the totals for the preceding year.

This falling off is accounted for by the General Land Office by the fact that the more easily and cheaply constructed projects have been taken up heretofore, and by the fact that that Office now makes a thorough investigation of the lands, water supply, etc., before granting a segregation, rather than relying, as was done at first, upon the investigations made by the states. The acreage for which patents is being asked is showing a considerable increase, due to the fact that in the case of the earlier segregations the time allowed for effecting the reclamation of the lands has nearly expired. Difficulty is being experienced in obtaining patents on some of the earlier segregations made when the regulations were more lax, as the General Land Office is now, before granting patents, making complete investigations regarding the permanency of the system and the sufficiency of the water rights of the companies.

CAREY ACT LANDS

State	Segregations under Act of August 18, 1894			Withdrawals under Act of March 15, 1910	
	Applied for (Acres)	Segregated (Acres)	Patented (Acres)	Applied for (Acres)	Withdrawn (Acres)
Colorado	.....	.....	.....	305,867.17	38,898.17
Idaho	15,348.58	15,236.71	74,911.08	47,525.85	35,213.23
Montana	20,843.71	28,188.05	7,356.12	.....	.....
Nevada	56,145.17	.....	.....	252,830.08	5,118.62
New Mexico	.....	.....	.....	373,951.62	10,000.00
Oregon	80,457.41	43,033.64	.....	429,854.93	48,686.61
Utah	7,500.28	.....	.....	.....	21,065.74
Wyoming	4,402.24	11,458.61	3,328.52	6,444.39	55,229.25
Total, year ending June 30, 1912	184,697.39	97,917.01	85,595.72	1,416,474.04	214,211.62
Total, year ending June 30, 1911	975,528.61	328,794.67	60,539.52	2,137,975.47	1,077,085.88

The provisions of the Carey Act were accepted by the legislature of Arizona on May 30, 1912, but with the proviso that until June 1, 1914, it should apply only to Indian Reservations. No segregations have been applied for in that state.

Irrigation in the Humid and Semi-Arid Sections.—The severe drought during the summer in Kansas, Nebraska, and other states of that section caused a great interest to be taken in the possibilities of the storage of the spring floods in natural reservoirs and of pumping for irrigation from the underground waters. The investigations made in the fall of 1912 by the Department of Agriculture regarding the reservoir possibilities in western Kansas and Oklahoma were published early in 1913 (Senate Doc. 1021, 62d Cong., 3d sess.). The 1913 session of the Kansas legislature created a state Board of Irrigation Survey, Experiment and Demonstration for the purpose of collecting data, conducting experiments, and making demonstrations to aid irrigation from wells in the western part of the state. This board was given $125,000, to be used in coöperation with the counties of the western part of the state in sinking wells and in installing and operating pumping plants and irrigation systems to be used for experiment and demonstration purposes. The counties of the state were also authorized to establish demonstration farms.

The interest in irrigation in the section east of the Mississippi River has steadily increased. In order to determine the value of supplementary irrigation and the methods best adapted to the humid section, the Department of Agriculture during the year conducted experiments in New Jersey, Maryland, Georgia, Florida, Alabama, Minnesota and Wisconsin.

The acreage of rice grown increased from 722,800 acres in 1912 to approximately 824,000 acres in 1913, practically all of the increase being in the irrigated sections of Texas, Louisiana and Arkansas.

Irrigation Securities.—There has been no improvement during the year in the market for the bonds of either Carey Act projects or irrigation districts. Several states — California, Montana, Nebraska, Arizona — have provided that irrigation district bonds shall be approved by a board or commission or recorded with some state board or official, and when so approved or recorded shall be legal investment for one or more of the following: trust funds, insurance companies, building and loan associations, banks, trust companies, or state school funds. The legislature of Idaho provided for a commission of five members to investigate what changes are necessary in the laws of that state to give the best credit and standing to irrigation bonds and to ascertain whether a new form of contract can be devised that will make irrigation bonds more secure and valuable and yet protect the interest of the settlers.

Interstate Waters.—Two suits have been filed in the Federal courts to determine the right to use the water from interstate streams. The case of Wyoming *v.* the Laramie-Poudre Irrigation Co. and the Greeley-Poudre Irrigation District, filed in the Supreme Court, involves the diversion of about 100,000 acre-ft. per annum from the Laramie River to be used outside the watershed of the river in Colorado. The case of the U. S. Irrigating Co. *v.* Colorado and a number of Colorado companies taking water from the Arkansas River was filed in the U. S. Circuit Court for Colorado and involves the question of whether 350 sec.-ft. of water must be allowed to pass the state line for use some distance below the line in Kansas, the contention of the parties being similar to those in the Kansas-Colorado case (206 U. S. 46).

Report of the California Conservation Commission.—This report was submitted to the legislature of the state on Jan. 1, 1913, and contains discussions of the subterranean storage of flood waters in the San Bernardino Valley and the ground water resources of the Indian Wells Valley and reports on the irrigation resources of the different sections of the state, with descriptions of the irrigable areas, the irrigation water supplies, the present irrigation development, and estimates of the future possibilities, together with detailed studies of the irrigation practices in six typical valleys. In all 335 separate valleys or units were studied. The whole area of irrigable agricultural land found in the zones of irrigation water supply is placed at 21,865,200 acres, of which 3,192,600 acres are already irrigated and 9,699,000 acres are the area which it is estimated will be ultimately irrigated. This report was made the basis of a law passed at the 1913 session of the legislature creating a state Water Commission, charged with the investigation of the present appropriations and use of water and having charge of future appropriations and the control of the waters of the state.

Irrigation Legislation.—With but a few exceptions the legislatures of all the arid and semi-arid states were in session in 1913, and all but one or two enacted some legislation pertaining to irrigation. The greater part of the legislation was merely reënactments with slight changes of existing laws, amendments to remedy minor defects in existing laws or to define procedure, or appropriations for the investigation of water resources, irrigation practices, etc., or for hydrographic surveys. Besides the legislation noted under other subjects, laws of especial importance were passed in Oregon, Washington, Nevada, and Texas.

In Oregon the state Land Board was authorized to complete the Columbia Southern Project, started by a Carey Act company, and to sell the lands to settlers in small units at a price sufficient to return the cost of reclamation plus five per cent. Four hundred and fifty thousand dollars were appropriated for this work, to be used in the years 1913 and 1914. A $50,000 appropriation was made to enable the State Engineer to coöperate with the Federal Government in investigating the land and water resources of the state and in preparing plans for the irrigation of any feasible projects.

A state Reclamation Board was created in Washington and authorized to investigate the feasibility and provide for the construction of a system, if feasible, for the irrigation of the Quincy Valley lands. The law, however, is not effective unless sustained by the referendum in November, 1914. The organization of agricultural development districts with power to develop land by irrigation was authorized also.

In Nevada a general irrigation law was passed, creating the office of state engineer and providing for the control of the waters of the state by that office. A general irrigation law and a new irrigation district law were enacted in Texas. The former divides the state into three water divisions and creates a board of water engineers to investigate the existing water rights and to have charge of the water resources of the state.

Drainage.—The disastrous floods in the spring of 1913 in the Ohio and Mississippi valleys emphasized the necessity of control of the flood waters and the protection of lands sub-

ject to overflow. The 1913 session of the Missouri legislature, besides passing a number of amendments to the drainage district and levee district laws, created a Department of Land Reclamation, which, in conjunction with the state Waterways Commission, will investigate the reclamation of approximately 4,000,000 acres of swamp lands and low lands subject to overflow by floods.

The growing need for drainage in the irrigated sections resulted in drainage legislation in a number of the states of the arid section at the 1913 sessions of their legislatures. Important among the legislation were new laws or general revisions of the existing laws pertaining to drainage districts in Nevada, Idaho, and Utah: laws authorizing the formation of agricultural development and drainage improvement districts in Washington; the creation of several reclamation and drainage districts in California; and the empowering of the Oregon Land Board to contract for the drainage of lakes, marshes, and swamp lands and for the reclamation and sale of the lands drained. The legislature of California formed the Sacramento and San Joaquin drainage district to control the flood waters of the Sacramento and San Joaquin rivers for the purpose of improving and preserving navigation and reclaiming and protecting the overflow lands. The plan adopted was that of the California Débris Commission reported to the House of Representatives June 27, 1911 (House Doc. 81, 62d Cong., 1st sess.). This plan provides for the reclamation of 400,000 acres, the present estimated average value of which is $20, but which it is estimated will be worth $150 when reclaimed, and the protection of 300,000 acres already reclaimed having an average value of $200 per acre. The total cost of all the reclamation work is estimated at $33,000,000.

Since 1902, the Department of Agriculture has been conducting investigations along drainage lines and assisting in bringing about the reclamation of lands by drainage. By June 30, 1912, 8,800,000 acres had been surveyed and classified by the Department as follows:

	Acres
Subject to periodical overflow	4,110,000
Continually wet, swamps, etc.	3,550,000
Requiring new or improved outlet channels	760,000
Farm lands needing complete drainage	20,000
Irrigated lands	360,000

The third annual Drainage Convention met at St. Louis April 10-12, about 300 delegates representing 30 states being in attendance. The purposes of this congress were stated as two: the bringing about of the reclamation of the swamp and wet lands of the United States and the prevention of river floods. Two systems of Federal control were advocated, namely: (1) by a special commission as provided for in the New-lands bill, and (2) by the creation of a Department of Public Works. A resolution was passed recommending the latter plan and advocating that the head of such a department be a Cabinet officer and that the department should have charge of all constructive engineering works of the Government, except works for military purposes.

HIGHWAYS

ANDREW P. ANDERSON

The Highway Problem. — The year 1913 has been a notable one in the field of highway engineering in many ways—in the development of sounder methods of road finance and the better understanding of road economics, in actual road construction and maintenance, in the progress of engineering practice with regard to road building and street paving, in the growth of a more harmonious relation and better understanding between the officials, engineers and contractors engaged in highway work, and in the trend of public opinion in all matters pertaining to the betterment of the roads of the country. By no means all of the problems pertaining to the financing, construction and maintenance of roads that will with-

stand the effects of present-day traffic have been solved, but the researches and experiments of the year have brought road builders nearer to the desired end than they were a year ago. Practice has become crystallized on some points and a more general agreement is noticeable on some of the problems which have so long perplexed the road engineers.

Of the developments during 1913 those pertaining to highway economics and finance seem to present the greatest advances made in recent years. Investigations and traffic censuses have revealed some definite facts which formerly were at best but vaguely surmised. Thus over any fairly large area of the agricultural states we find that 10 to 15 per cent. of the roads carry about 75 per cent. of the traffic, 25 per cent. of the roads carry about 20 to 25 per cent. of the traffic, while the remaining 60 or 65 per cent. of roads carry only about 10 per cent. of the traffic. It is also evident that a few main or through roads connecting centers of population or leading to recreation and scenic resorts carry an unusually large and ever-increasing proportion of motor vehicles. Traffic censuses in Massachusetts show that during a period of four years the increase of automobile traffic on all state roads averaged 131 per cent., while on some trunk-line roads the increase amounted to 300 per cent. Moreover, this latter class of traffic is very flexible and much difficulty is still experienced in many places in determining before improvement which of two or more routes will be generally chosen by this class of traffic.

Based on traffic, the roads thus naturally divide themselves into four distinct classes: through or automobile routes, main roads, secondary roads, and by-roads or feeders. This forms at once a basis for determining not only what roads to improve and the character of the improvement, but also for financing the improvements and distributing the cost in a more equitable manner. Traffic investigations have also demonstrated the necessity of planning, in general, our road systems as a systematic whole, instead of providing simply for isolated single roads. California furnishes one of the best recent examples of a definitely planned system of through state roads. These comprise a system of some 2,200 miles, or about four per cent. of the total state mileage, connecting the principal centers of population and so located as to provide for the great bulk of the heavy automobile traffic. The county road systems are thus freed from the onerous burden and difficulty of providing for the large volume of extraneous traffic and left to plan the county road system on the basis of local traffic and local requirements.

Federal Aid.—The demand for Federal aid seems to be steadily increasing, if we may judge from the ever-increasing number of resolutions, memorials and petitions passed by various organizations throughout the country. To a certain extent this demand has been skillfully fostered and aided by certain interested bodies, though there is no denying that a large portion is spontaneous. This well-defined demand for Federal aid has unfortunately in certain sections been used as a buffer for defeating state legislation and state or local appropriations. For why should the state or county assume heavy burdens which may soon by a little more agitation be assumed by the Federal Government?

The Federal appropriation of $500,000 for the construction of experimental and rural delivery routes in 1912 (*A. Y. B.*, 1912, p. 262) has not met with the expected response from the states. The chief stumbling block seems to be the fact that the state or locality where a road is to be located must contribute twice the amount contributed by the Federal Government and the entire amount to be expended in accordance with government specifications and under governmental supervision.

The usual flood of road bills made their appearance in Congress during the year. There is, however, one significant difference, the attention and consideration in general which has been given to the few bills which provide for substantial Federal aid and at the same time seem to provide a practical means of escape from the "pork barrel." Not a few members of the present Congress have either

on the floor, in public addresses or in the press affirmed that their only serious objection to Federal aid is the practical impossibility of eliminating the "pork barrel" as exemplified in the public buildings and river and harbor improvement appropriations of the past. The questions of constitutionality and of infringement of state rights seem to have lost their former importance. The main discussion in 1913 centered about such questions as the sources of revenue and the prevention of abuses, or, in other words, the discussions have largely turned from the abstract subjects of theory and policy to the concrete subjects of means and methods.

State Legislation.—During the year 12 states have made more or less fundamental changes in the laws and regulations relating to highways. Maine, Colorado, New York, Iowa, Idaho, Illinois, Missouri, and Minnesota have reorganized their highway departments and adopted more or less far-reaching legislation. Montana, South Dakota, Arkansas and Oregon have provided for highway departments and some attempt toward state aid, while nearly every one of the 41 legislatures in session passed some measures pertaining to road administration, finances, construction, or maintenance.

The legislation passed by the various states presents many divergencies and serves to emphasize the fact that American road administration and finance is still far from having reached a common, accepted standard. As compared with legislation of the past 10 or 15 years, however, we readily trace a definite trend toward greater centralization and more definite responsibility in administration as well as, though less clearly marked, better and more scientific methods of road finance. All over the country there is an awakened realization of the economic importance of the public roads and the need of dealing with them in a scientific and business-like way. Vast sums of money are needed for road improvement and road maintenance. These funds must be raised on an equitable basis and administered and expended so as to produce the maximum results.

In administration there is a decided tendency toward creating two organizations in such manner as to be practically free from politics, each with full control in its field, but both working in harmony, a state department for state or state-aid roads, and a county or town department in charge of the local roads. In some instances, however, injudicious agitation for interstate or through automobile roads and other causes have served to create a marked reaction against centralization and an effort to return to extreme localization.

In regard to road finance and road revenues, there still exists a great variety of systems. Two points, however, stand out clearly: first, a tendency to reduce the term of bonds issued for road construction; and second, a growing tendency to raise immediate road revenues by issuing bonds. Five years ago the term of county and district-road improvement bonds often exceeded 30 years. In 1912 the average term was about 22 years, while the road bonds voted for the first six months of 1913 have an average term of about 20 years. The state road improvement bonds of Massachusetts and Maryland are now issued for terms of 15 years.

Wisconsin, on the other hand, is rapidly improving her roads without issuing bonds. During 1913, 536 miles of state-aid road have been improved with a hard surface and 460 additional miles graded and drained, all from funds provided by direct taxation. The plans for 1914 contemplate a total expenditure of about $4,000,000 in the construction of state-aid roads, none of which will be raised from long term bond issues. The legislation passed by Iowa provides for all improvements to be paid for from direct taxation without resorting to bond issues. In Tennessee an "act enabling counties to issue bonds for highway improvements," approved Sept. 27, 1913, provides that a tax equal to two per cent. of the total bond issue shall be collected annually during the term of the bonds and set aside for the maintenance and repair of the roads built from such funds.

Another noteworthy feature in regard to road legislation is the determined efforts many of the middle states, especially Iowa, Missouri, Illi-

nois, and Minnesota, are making to provide for better maintenance of their earth roads. Iowa was the first state to make dragging of the earth roads mandatory (*A. Y. B.*, 1912, p. 265). This law has proved so satisfactory that it has been copied in more or less modified form by Missouri, Illinois, Nebraska, and Minnesota during the past year. In this region, where material for building hard roads is largely lacking, there is now a well-defined belief that where the traffic is not too heavy, a comparatively small amount of judicious attention will greatly improve the common earth roads. The new Missouri law provides for $15 a year per mile for dragging certain inter-county earth roads.

Construction and Maintenance. — The past year has shown but few new developments in either construction or maintenance. Instead, there has been steady progress along fairly well-established lines. Of the newer forms of construction, concrete with a bituminous wearing surface seems to have demonstrated its value (*A. Y. B.*, 1912, p. 265). Wayne County, Mich., continues to lead in the construction of plain concrete roads. Sufficient time has not yet elapsed, however, to give us a definite idea of the life or the cost of maintenance of the plain concrete road. But the present condition of some of these roads which have now been subject to fairly heavy mixed traffic for three or more years would indicate at least a low maintenance cost for several years after construction. In the standard forms of construction we note a gradual improvement in questions of engineering practice and a better standardization of the materials, especially the bituminous binders. Asphaltic oil, coal tar, and asphalt have been the binders most largely employed in permanent improvement.

The mileage of sand-clay roads is increasing very rapidly in the southern and southwestern states. Combining as it does a low first cost of construction with great ease of maintenance under present prevailing traffic conditions, the sand-clay road may be said to be almost ideal for large sections of the agricultural regions of the South. It is estimated that over 4,000 miles of sand-clay roads have been built in 15 states during 1913, at an average cost not exceeding $750 per mile. The average maintenance charges on the sand-clay roads of this region have probably not exceeded $25 per mile per year.

Brick roads are yearly becoming more popular, especially throughout the states of Ohio and Pennsylvania. The first cost of a well-constructed brick road averages about $1,000 per foot of width for each mile of road. The past year has again served to emphasize the fact that, of construction having the same first cost, the brick road is one of the best to withstand a heavy mixed traffic.

Road maintenance presents the largest number of unsolved problems in the field of highway engineering. Some of these questions are local, others state and nation wide; some are purely engineering, others political or economic. Everywhere we find a great diversity of practice, opinions, and also cost. The state of New York finds $1,000 per mile inadequate to maintain the state roads in first-class condition, while Massachusetts succeeds in keeping her state roads in at least a fair state of maintenance for about $600 per mile per annum. One thing looms larger than all else, the steadily increasing cost of road maintenance during the past 10 or 15 years. Traffic is steadily increasing on our roads, but the cost of maintenance is increasing at a much greater rate, especially when we take into consideration the increased cost of construction made necessary by present-day traffic. Many forms of road construction employed five or six years ago, and which we hoped would more than offset their increased cost in lower maintenance, are only adding to our burden. Repeated observations have clearly demonstrated that on any of the variously bonded macadam or similar road surfaces the most destructive traffic is composed of a large number of heavy automobiles moving at a high rate of speed and a sufficient number of heavily loaded wagons on narrow iron tires to make up 10 or 20 per cent. of the total traffic. Unfortunately this is the character of the traffic on many through roads in the neighborhood of towns or cities.

State and Through Roads.—In the construction of state roads New York easily leads with nearly 1,000 miles completed in 1913. This remarkably large mileage, however, is due to the large number of contracts not completed in 1912, but carried over to 1913. Of the $50,000,000 bond issue, $5,000,000 was appropriated for construction, while the legislature appropriated $3,464,476 for maintenance. Pennsylvania has been forced to abridge her proposed programme of construction because of lack of funds. An amendment to the constitution to provide for the issue of $50,000,000 bonds for building a system of state roads was defeated at the general elections, Nov. 3, 1913. California has practically completed the final location for her state highway system, while about 300 miles have been completed or are under contract.

Much interest has been shown in routing and improving interstate and transcontinental roads. Numerous organizations have been formed for the sole purpose of advancing the interest of one or more of these routes. Practically all of the old historic roads and trails have been marked and sufficiently improved to permit the passage of automobile traffic at least a portion of the year.

International Road Congress.—The Third International Road Congress met in London, June 23-28. Though the United States was not officially represented, 17 of the 140 reports and communications brought before that body were presented by Americans. The full deliberations and communications of this great body of eminent highway engineers have been published and forms perhaps the latest and most authoritative statements on nearly every phase of highway engineering (*Reports of the Third International Road Congress*, W. Rees Jeffrys, Secretary, London, England).

WATERWAYS

T. W. Van Metre

Federal Appropriations. — By the Rivers and Harbors Act approved March 4, 1913, Congress appropriated $41,073,094 and authorized the Secretary of War to enter into contracts for additional work, the total cost of which is not to exceed $6,795,800. In the Sundry Civil Appropriation Act approved June 23, 1913, the sum of $10,045,795 was appropriated, chiefly to pay for previous contracts for river and harbor improvement. The total amount appropriated by the Federal Government for rivers and harbors, up to and including the appropriations during 1913, was $746,927,946.61. The amount expended by the Federal Government during the fiscal year ending June 30, 1913, was $40,725,685.99.

Work of the Army Engineers.—Much progress has been made by the Engineer Corps of the Army during the past year in the betterment of practically all the coast and lake harbors and the navigable rivers. The more important improvements are described in the following paragraphs:

Atlantic Coast. — The harbor at Providence, R. I., is being deepened and widened. At Providence and Pawtucket, in conjunction with the work of improving the harbors and channels, which is being done at the expense of the nation, the city of Providence and the state of Rhode Island are expending $2,000,000 for the construction of better terminal facilities.

The work of securing a 35-ft. channel at the entrance to Boston Harbor has been completed, and the dredging of the dangerous Pollock Rip Channel at the entrance of Nantucket Sound was continued.

At New York, the city and the Federal Government are coöperating in the work of improving Jamaica Bay. The new Ambrose Channel is now practically finished. Considerable progress was made during the year in the work of deepening the Bay Ridge and Red Hook channels and Flushing Harbor. The harbor at Newark, N. J., has been dredged to a depth of 16 ft. at mean low water.

The work of securing a 35-ft. depth in the Delaware River between Philadelphia and the Atlantic is about one-fourth completed, and at the present rate of progress should be finished in

1915. The deepening of the channel of the Delaware River from Philadelphia to Trenton, authorized in 1910, was completed in May. The channel is now 200 ft. wide and has a minimum depth of 12 ft. at mean low water.

The Chesapeake and Albemarle Canal, the purchase of which was authorized by Congress in 1912, passed into the possession of the Federal Government in the Spring and was opened to free navigation. The price paid was $500,000. The Beaufort cut from Beaufort Inlet to Pamlico Sound has been completed, and within a few years there will be a sheltered waterway, with a minimum depth of 12 ft., extending along the coast from Norfolk, Va., to Beaufort, N. C.

The construction of the harbor of refuge at Cape Hook, N. C., is proceeding. Congress appropriated $500,000 for the continuation of this work, and authorized contracts for an additional sum of $600,000.

At Charleston, S. C., the work of widening the 28-ft. harbor channel is almost finished, and the 26-ft. channel at Savannah, Ga., is likewise nearing completion.

Gulf Coast.—The deepening of the channel in Hillsboro Bay to Tampa has been continued, and $200,000 was appropriated for its completion. The dredging of the channel in Mobile Bay to a depth of 27 ft. will soon be done. The Southwest Pass of the Mississippi River has been dredged to a depth of 31 ft. at mean low water.

Galveston Channel had during the past year a depth of 31¼ ft., slightly less than the depth during 1912. The work of securing a 30-ft. channel from the inner bar to 51st Street is now under way. The dredging of the Texas City Channel from Galveston to Texas City, which is ultimately to have a depth of 30 ft., has been continued, and a depth of 24 ft. has been attained for most of the distance. The work of dredging the Houston Ship Channel to secure a depth of 25 ft. from Galveston to Long Beach, near Houston, is being done at the joint expense of the Federal Government and Harris County, Texas. The canal from Galveston to Corpus Christi, an intracoastal waterway skirting the coast of Texas for a distance of 200 miles, was completed and opened to navigation throughout its length in 1913. This canal is a link of the project for a waterway covering a distance of 700 miles from New Orleans to the Rio Grande below Brownsville, Tex., which in turn is a part of the great plan for a protected waterway along the entire eastern seaboard of the United States. The canal from Sabine Pass to Port Arthur was deepened and widened, and $400,000 more was appropriated for the continuation of the work.

Pacific Coast.—The construction of the immense jetties and the dredging of the river bottom at the mouth of the Columbia River were continued throughout the year, and Congress appropriated $1,000,000 to carry on the work in 1914. The harbor channel at Oakland, Cal., was dredged to a depth of 22.5 ft. at mean low water, and the 30-ft. channel to the artificial harbor at Los Angeles, together with the east and west basins of the harbor, are practically completed.

River Improvement.—A million dollars was appropriated in 1913 for the continuation of the improvement of the Hudson River below Troy. The approaching completion of the New York State Barge Canal insures an increase of the commercial importance of the Hudson.

The construction of the series of 54 locks and dams in the Ohio River between Pittsburgh and Cairo, which will give the river a minimum depth of nine feet throughout the year, is proceeding, 11 dams now being finished. An appropriation of $1,800,000 was made during the year for continuing the improvement, and the Secretary of War was authorized to make contracts for further work to cost not more than $3,200,000.

For the construction of levees along the Mississippi River and the deepening of its channel, with a view to securing a permanent depth of nine feet below the mouth of the Ohio River, Congress appropriated $6,000,000 during the year.

The dam now under construction in the Mississippi River just below Minneapolis will be completed in 1915. This structure will give a depth of 9.5 ft. at Minneapolis. In addition to supplying that city with a navigable

waterway, the new dam will afford facilities for the generation of a minimum supply of electric power of 10,000 h. p. daily. The electric plant will probably be leased and operated by the University of Minnesota.

The improvement of the channel of the Mississippi from Minneapolis to the mouth of the Ohio is proceeding, $2,500,000 having been appropriated for the work in 1913. The work of making a permanent 6-ft. channel in the Missouri River from Kansas City to the mouth of the river is being pushed forward, and $2,000,000 more was appropriated toward its completion.

The construction of the fourth lock on the American side of St. Mary's River is now under way; a new lock and canal have been authorized and an appropriation of $1,500,000 made to start their construction.

The canalization of the Columbia River from its mouth to Lewiston, Idaho, a distance of 500 miles, is expected to be finished in 1915, after which Lewiston will take its place as one of the seaports of the nation.

Many other rivers of more or less commercial importance are being improved by the construction of locks and dams and by dredging, the Warrior, Black Warrior, Tombigbee, Trinity, Brazos, Tennessee, Cumberland, and Detroit all receiving appropriations, while scores of smaller streams are also being deepened and widened.

Improvements by State and Private Agencies. — The New York State Barge Canal, for the construction of which the people of the state voted a bond issue of $101,000,000 in 1903, is about two-thirds finished. On Oct. 1 the value of contracts executed amounted to approximately $83,000,000, and the value of work completed to approximately $64,000,000. The route of the old Erie Canal and its branches has been largely abandoned, the Barge Canal project being largely a scheme of river canalization. The main branch of the new waterway follows the bed of the Mohawk River from the Hudson River to a point near Rome, after which Wood Creek, Oneida Lake, and the Oneida, Seneca and Clyde rivers are utilized to carry the channel to the western part of the state, where the bed of the old canal is retained for the remainder of the distance to Buffalo. The new canal, with a minimum depth of 12 ft. and a minimum width at the bottom of 75 ft., will accommodate barges of 3,000 tons capacity, making possible a traffic 25 times as large as the old canal was able to accommodate. New York City and Buffalo are planning the construction of extensive terminal facilities to care for the commerce the Barge Canal is expected to bear, and the Federal Government is expending large sums on the improvement of the Hudson River.

The Cape Cod Canal, from Cape Cod to Buzzard's Bay, is about three-fourths done. This canal, which is being built by a private corporation, was begun in June, 1909, and it is expected that it will be finished in 1915. It is eight miles long, with a minimum bottom width of 100 ft. and a mean low water depth of 25 ft. A tonnage of about 25,000,000 now passes around Cape Cod annually, and it is expected that a large part of this tonnage will pass through the canal, which will afford a much safer and shorter route. The Federal Government has authorized a survey of Buzzard's Bay with a view to the removal of the obstructions at the southern entrance of the Canal.

Other Waterway Projects.—One of the most important movements toward the improvement of inland waterways is that for securing a chain of intracoastal waterways from Maine to Florida. Already several links of the chain have been completed, the notable advances of the year being the improvement of the upper Delaware River and the opening of the Chesapeake and Albemarle Canal. During 1913, Gen. W. H. Bixby, Chief of Engineers, U. S. Army, in reports to the Secretary of War, recommended that the Federal Government construct immediately a lock canal, 12 ft. deep with a bottom width of 90 ft., from the Delaware River to New York Harbor, purchase the Chesapeake and Delaware Canal and transform it into a sea-level canal, and open a seven-foot waterway from Beaufort, N. C., to the upper St. John's River, Fla., whence it is proposed subsequently to build a canal across Florida to the Gulf of Mexico to connect with the

chain of waterways being constructed along the entire Gulf coast.

The construction of a great waterway from Chicago to the Gulf of Mexico, for which there has been much agitation during recent years, and toward the building of a part of which the people of Illinois voted a bond issue of $20,000,000 in 1908, is not receiving general support. The Secretary of War denied the application of the Sanitary District of Chicago for permission to divert from Lake Michigan 10,000 cub. ft. of water per second, instead of 4,167 cub. ft. as at present authorized, on the grounds that the resulting reduction of the level of the Great Lakes would cause an injury to navigation that would more than offset the benefits arising from the increased flow of water through the Chicago Drainage Canal.

The Ohio Valley Floods. — The Spring of 1913 witnessed a most disastrous flood in Indiana and Ohio. Between March 23 and 26 there was a rainfall averaging six inches all over both states. All the northern tributaries of the Ohio River were overwhelmed by the tremendous downpour, and hundreds of miles of country were submerged. The deluge of water made the Ohio River overflow, causing serious losses all along its banks, the greatest damage being done at Henderson, Evansville and Cairo. The Mississippi overflowed its banks in many places, but its waters did not reach such a high stage as during the great floods of 1912 (*A. Y. B.*, 1912, p. 267). The unexpected disasters along the smaller streams of Indiana and Ohio has caused a more determined movement toward measures for flood prevention and control. Federal, state, and local governments are authorizing investigations of the entire problem. The annual loss from floods in the United States averages more than $50,000,000. The saving of half this amount each year would soon pay for a system of reservoirs and dikes which would prevent the continual recurrence of destructive inundations. (See also XXIII, *Civil Engineering.*)

THE PANAMA CANAL

FRANCIS G. WICKWARE

Appropriations.—The total appropriation made by Congress for the Panama Canal up to June 30, 1913, amounted to $349,505,223.14, including $16,265,393 appropriated by the Urgent Deficiency Act of June 23, 1913. Of this amount $10,676,950 was for fortifications, $4,870.000 of which was appropriated by the Act of June 25, and $21,411.56 was for the relief of private persons. The balance of $338,806,861.58 was appropriated for the construction of the canal and is a charge against the total authorized bond issue of $375,200,900. Up to June 30, 1913, a total of $318,132,956.79 had been disbursed for canal construction, leaving an actual cash balance of $20,673,904.79. The balance available for appropriation is $36,394,038.42. The estimate for the fiscal year 1915, submitted to Congress on Dec. 2, is $26,326,985.

Status of the Work. — Colonel Goethals' annual report for the fiscal year 1912 (*A. Y. B.*, 1912, p. 268) predicated the completion of the canal by the close of the year ending June 30, 1913, on the completion of the lock gates by the contractors and on the cessation of slides. His latest report, published on Nov. 24, records the completion of the concrete work on the locks during the fiscal year 1913 and explains that but for slides the excavation of Culebra Cut would also have been completed. Slides and breaks have increased as the Cut was deepened. The most troublesome movement during the year was the slide at Cucaracha. It was predicted in the report for 1912 that the movement at this point was practically ended, most of the surface stone and clay having slid off, exposing several large dykes and flows of basalt which would maintain in place the remaining material. On Jan. 20, however, the basalt rocks broke and 2,000,000 cu. yd. of material slid into the Cut, closing is completely. While the excavation of all the other slides in the dry could be completed by Jan. 1, 1914, it was apparent that the

removal of the Cucaracha slide by steam shovels would take several months longer. It was decided, therefore, to leave it for excavation by dredging as soon as dredges could be brought into the cut through the locks.

A new agreement with the contractors for the lock gates was entered into on May 20 granting an extension of time for the completion of the locks because of unavoidable delays due to causes beyond the contractors' control. This agreement provided that all gates necessary to permit the lockage of vessels through one side of each flight from ocean to ocean, should be completed by Oct. 1, while all the remaining gates at Gatun and Pedro Miguel should be completed by Jan. 1, 1914, and at Miraflores by March 1, 1914. On Sept. 26 a tug was locked through Gatun Locks into Gatun Lake and on Oct. 1 water was admitted to Culebra Cut through sluices in the dike at Gamboa. The dike was blown up on Oct. 10 by a charge of eight tons of dynamite exploded by the pressure of a button by President Wilson in Washington. Dredges immediately began work on the dike and on Oct. 20 dredges passed through the opening and attacked the north side of Cucaracha slide. The first lockage was made at Miraflores on Oct. 14 and the first lockage at Pedro Miguel on the 24th. On the 26th dredges began work on the south side of Cararacha slide. By the middle of December a channel was cut through the slide, and on Jan. 7, 1914, the crane boat *La Valley* completed the first passage of the canal from ocean to ocean. Secretary of War Garrison predicted in November that the canal would be open for traffic early in the Spring of 1914, but the formal opening will await final completion later in the year.

To Dec. 1 the grand total of canal excavation was 213,904,031 cu. yd., leaving 18,448,969 cu. yd. to be excavated, under the revised estimate of July 1, 1913.

Atlantic Division.—The work of the Atlantic division during the fiscal year included the construction of the locks and dams at Gatun and the excavation between the locks and deep water in the Caribbean. The small amount of excavation required at the site of the Gatun locks at the close of the fiscal year 1912 (*A. Y. B.*, 1912, p. 269) was completed in November, 1912. With the exception of a few thousand cubic yards of miscellaneous finishing, the concrete work of the locks was completed on June 14; the total amount of concrete laid in the locks to the close of the fiscal year was 2,040,715 cu. yd., of which 164,715 cu. yd. was placed during the fiscal year. The Gatun dam was raised during the fiscal year to practically its full height, with three to five feet additional along the axis to allow for settlement. The dry fill amounted to 2,159,159 cu. yd., and the hydraulic fill, which was stopped in September, 1912, to 922,877 cu. yd. In the spillway 21,719 cu. yd. of concrete was placed during the year, bringing the total to 224,132 cu. yd., and the construction of the hydroelectric plank was begun. Dredges worked in the canal prism throughout the year, mainly for the removal of silt; the dry excavation was completed during the fiscal year 1912.

Central Division.—Excavation during the fiscal year in this division, the work of which included all excavation betwen Gatun Dam and Pedro Miguel locks, was confined to Culebra Cut. From the canal prism a total of 12,582,124 cu. yd. of material was removed, nearly all of which was rock. According to the estimate of July 1, 1912, this amount was more than sufficient to complete the excavation in this section. Because of slides, however, there still remained to be excavated at the close of the fiscal year an estimated total of 8,200,000 cu. yd., representing an increase in the estimate of the preceding year of 9.280,237 cu. yd. The total amount of material excavated from this division from the American occupation to July 1, 1913, was 107,139,181 cu. yd., of which 93,305,975 cu. yd. was from Culebra Cut. By Nov. 1, the material to be removed was reduced to 6,251,300 cu. yd.

Of the total excavation during the fiscal year, 5,899,200 cu. yd., or 46.67 per cent. was removed because of slides; in the fiscal year 1912 excavation because of slides amounted to 35.90 per cent. of the total. To the end of June, 1913, the total amount

of slide material removed from Culebra Cut was 22,570,200 cu. yd., an increase of 2,304,200 cu. yd. over the estimate submitted in Colonel Goethals' report for 1912. As noted above the Cucaracha slide has been the most troublesome.

At the close of the fiscal year the area still in motion was approximately 50 acres. Since this slide began to move in July, 1905, a total of 3,859,500 cu. yd. of material had been removed from it to July 1, 1913, and on that date approximately 1,500,000 cu. yd. remained to be excavated. Little progress was made until water was admitted to the Cut in October; since then several dredges have been at work. From the West Culebra slide, covering an area of 68 acres, 1,922,700 cu. yd. of material was removed during the fiscal year, making the total since the slide began in October, 1907, 8,687,600 cu. yd.; the amount remaining to be excavated on July 1, 1913, was estimated at 2,390,000 cu. yd. From the East Culebra slide, which developed in January, 1907, and covers an area of approximately 55 acres, the total amount of material removed to July 1, 1913, was 5,966,200 cu. yd., of which 1,676,300 cu. yd. was removed during the fiscal year, leaving about 2,000,000 cu. yd.

Pacific Division.—The Pacific division, in charge of the construction of the locks and dams at Pedro Miguel and Miraflores and the excavation of the canal prism between the locks and below Miraflores to deep water in the Pacific, was abolished on Dec. 12, 1912, and its work divided between two new divisions reporting to the chief engineer, the fifth in charge of construction and dry excavation, and the sixth in charge of dredging operations. At Pedro Miguel 58,367 cu. yd. of concrete was added to the locks, bringing the total to 906,293 cu. yd., and practically completing the concrete work. The west dam also was finished at elevation 107 with the addition of 114,117 cu. yd. of fill, bringing the total to 696,558 cu. yd.

The concrete work at Miraflores Locks was completed on May 17; 450,792 cu. yd. of concrete was placed during the fiscal year, bringing the total to 1,476,895 cu. yd. To the spillway dam 64,142 cu. yd. of concrete was added during the fiscal year; the concrete work on the spillway was completed on Oct. 8. The west dam was completed with the addition of 418,375 cu. yd. of dry fill, and 1,128,769 cu. yd. of back fill was placed in the lock walls, bringing the total to 2,006,054 cu. yd.

Dry excavation in the canal prism, between the locks and below Miraflores totalled 3,120,851 cu. yd. during the fiscal year. The dredges in charge of the sixth division removed 4,321,956 cu. yd., leaving 3,447,774 cu. yd. to be excavated. At the close of the fiscal year the channel was excavated to a depth of 40 ft. for the first mile and a half, 35 ft. for the next five miles, and 10 to 30 ft. betwen this point and the locks. Siltage in the prism during the fiscal year amounted to 2,084,000 cu. yd. On Nov. 1 the material to be removed by dredging in this division amounted to 2,224,957 cu. yd.

Labor.—The number of employees on the work of the canal and the Panama Railroad increased steadily during the first nine months of the fiscal year, from 34,957 on July 1, 1912, to 44,733 on March 26, the largest number in the history of the work. On June 30, 1913, the number of employees was 43,350, and by Oct. 29, the force had decreased to 36,426. The average number of American employees during the fiscal year was 5,110.

DOCKS, WHARVES, AND WATERFRONTS

BURR J. RAMAGE

Administration.—The Federal Government, through the War Department, establishes harbor and pierhead lines that determine the length of wharves; constructs breakwaters; it also deepens, widens and otherwise improves harbor channels. Several bureaus of the Department of Commerce aid the navigation of harbors and other watercourses by lighting, buoying, and charting them. Municipal and state governments are more

directly concerned with the ownership of waterfronts and with the administration of ports. There is now, however, an augmenting tendency on the part of local authorities to coöperate with the Federal Government in the matter of harbor improvements.

As regards the ownership of waterfronts and the construction of wharves and other terminals, these, with a few notable exceptions, have been largely matters of private enterprise. Thus the waterfront at a very large number of American ports belongs to railroads and industrial companies, while port terminal facilities, including docks, wharves, warehouses, and mechanical appliances for loading and discharging vessels are generally the property of dock companies, railroads, coal, ore, and other business corporations that are frequently unconnected with general shipping. But there is to-day a widespread movement to acquire these facilities, as did years ago New Orleans, San Francisco, and, in less degree, New York, for the general use of the shipping public and thereby to eliminate, as it were, all private gain from the waterfronts. This has operated to bring about a larger measure of centralization in port administration. Ideals such as those just described represent the forward movement of American ports, a movement that found national expression at New York City in December, 1912, at a conference held there of port authorities, composed of representatives from all of the leading ports of the United States. After a general exchange of views relating to port construction and administration, the conference was organized as a permanent association. Its second meeting was held at New Orleans in December, 1913.

New York.—Two states, New York and New Jersey, are represented in the port of New York, whose total waterfront aggregates 770 miles. The frontage in New York City aggregates 577 miles, of which that municipality owns 349 miles and the Federal Government 10 miles. The city also owns 235 wharves out of a total of 805, and the rent therefrom in 1912 was $4,240,510. Jurisdiction over these public wharves is vested in the Commissioner of Docks. The length of waterfront in public ownership is increasing each year and has been so increasing since 1871, when the Department of Docks and Ferries was organized. Three years ago there was constructed the last monumental improvement, the Chelsea trans-Atlantic steamship terminals. But the rapid growth of trans-Atlantic liners has forced the city to secure a new location, and it is now constructing in the vicinity of West 46th Street, North River, a modern steamship terminal capable of accommodating 1,000-ft. liners. Meanwhile, the Harbor Commission of New Jersey, in its report to the Governor, outlines a plan to improve the portion of this waterfront that is subject to its jurisdiction. The report also points out that New Jersey has too long allowed its portion of this riparian property to be exploited by railroads for lighterage purposes and in the general interest of other sections of New York Harbor.

Boston.—During the past year the Directors of the Port of Boston, a state board for whose work the legislature authorized a bond issue of $9,000,000, have been actively developing shipping facilities. At South Boston, Commonwealth Pier No. 5 has been recently completed at a cost of $2,500,000. It is 1,200 ft. long by 400 wide. On the Commonwealth Flats, also in South Boston, the lessee, a private company, is erecting the Fish Pier, which will be one of the finest fish terminals in the world, if not the finest. In East Boston the Board is expropriating and widening a pier at a cost of $1,750,000. A large dry dock is also projected.

Philadelphia.—About six years ago the legislature of Pennsylvania created a Department of Docks, Wharves and Ferries, which was empowered to purchase and construct port terminal facilities. Under the direction of this department the city is gradually reorganizing shipping facilities. The waterfront is still largely owned by private corporations. Recently, however, several piers have been taken over under an eminent domain enactment of the legislature. The Dock Street Pier, costing the city about $1,000,000, including the site, is about completed. Preliminary work has also been started on the Southwark Piers.

In 1913 the state of Pennsylvania appropriated $250,000 for the improvement of public docks and wharves at Philadelphia.

Baltimore. — In recent years the state legislature and the voters of the city of Baltimore have authorized the issue of bonds aggregating $9,000,000. After the great conflagration of 1904, the Burnt District Commission embraced the opportunity to launch a scheme of public wharves, and this policy has won its way. A new commercial and recreation pier is in course of erection and will be completed in 1914. Private corporations have also been actively developing their frontage during the past year at both Baltimore and the near-by ports of Canton and Port Covington.

Savannah. — The city has acquired 303 ft. of wharfage on the city front and 400 ft. of waterfront on the upper harbor. There are nine public docks and 29 private owners. Further harbor improvements include a turning basin to accommodate the largest liners. During the past year the railroads have expended more than $1,000,000 on new slips, wharves, warehouses, and other terminals. The wharves of the Merchants and Miners Transportation Co., which were burned early in 1913, are being rebuilt at an estimated cost of $300,000.

Mobile has bought 2,000 ft. of waterfront, erected steel sheds, 1,240 ft. long by 100 wide, and has expended $20,000 to help dredge the harbor.

Galveston. — Recent improvements by private parties are the installment of three banana conveyors, the construction of several piers and of 24 miles of railroad terminals.

New Orleans.—The Board of Commissioners of the Port of New Orleans, a state board, took over the public wharf system in 1901. The earnings of the Board in 1912 amounted to $429,996, as against $396,730 the preceding year. There are 41.4 miles of waterfront under the control of this Board, five miles of wharfage, with an area of 2,264,571 sq. ft., and 3.66 miles of steel sheds, with an area of 2,642,689 sq. ft.; only six wharves are owned by private parties. A public belt railroad connects the wharves with the industrial section of the port. In recent years, bonds aggregating $3,500,000 have been issued to better the harbor facilities. Among recent improvements are a new wharf, 1,500 ft. in length, seven banana conveyors, six conveyors at the Southern Pacific Co.'s wharf, and appliances at the Sugar Refinery wharf. The Board has erected three conveyors to unload bananas.

San Francisco. — The 10 miles of waterfront at San Francisco and its 30 projecting wharves, together with a belt railroad serving the waterfront, are owned by the state of California and are administered through a State Board of Harbor Commissioners. It has never been necessary to deepen or widen the harbor, as all channels are well scoured by tides. For port improvements there have been issued during the past 10 years bonds aggregating $12,000,000, running for 75 years, and redeemable from harbor dues. Wharves are leased for terms not exceeding 15 years, the lessee paying in advance the cost of construction. There are, now in course of construction or projected, 18 new concrete piers, some of which are to replace wooden structures.

Los Angeles. — When the ports of San Pedro and Wilmington were consolidated with Los Angeles, which is about 21 miles from the sea, a bond issue of $3,000,000 was authorized for port and harbor improvements; in 1913 an additional issue of $2,500,000 was authorized for the same purpose. Extensive improvements have been made in and around the harbor, and the city and private parties are now constructing transit sheds.

Seattle.—Prior to 1911 the harbor facilities of this port were entirely in private hands. The existing improved dock frontage is 49,935 ft., to which 23,686 ft. is being added at public expense by the Seattle Port Commission. This body was organized two years ago and is authorized to expend $6,300,000 in harbor improvements. It is expected that by 1915 there will be 13½ miles of dock frontage improved and available. Out of 58 wharves, three are now owned by the public. The present waterfront aggregates 70 miles, which will be about trebled on the completion of the Lake Washington Canal to connect Union Bay with Puget Sound.

XI. PUBLIC SERVICES

Richard C. Harrison

FRANCHISES

New York Subway Contract.—Overshadowing all other franchise matters during 1913 was the settlement reached in New York City for the construction and operation of the new rapid-transit lines. The agreement finally ratified on March 19, 1913, undoubtedly constitutes the most gigantic franchise deal ever effected by a municipality. Statistics of the financial and operating details are given on a subsequent page of this article (see *Municipal Ownership, infra*). Considered as franchise documents the new contracts are extremely interesting and important. They are very complex, not less than 125,000 words having been marshalled to cover the details of the agreements. The net result is a division of rapid-transit facilities in New York City into two great interlocking systems. The lines, both elevated and subway, on Manhattan Island and in the Bronx are to be controlled by the Interborough Rapid Transit Co., the operator of the existing subway. The lines in Brooklyn are to belong to the New York Municipal Railway Co., which is the name assumed by the Brooklyn Rapid Transit Co. interests for the purpose. The Brooklyn company is, however, given a line into the very heart of Manhattan running along Broadway from the City Hall to 59th Street and across the Queensboro Bridge to Queens. The Interborough Co. is extended into Brooklyn by lines running from the terminus of the present subway along Flatbush Avenue to Eastern Parkway and thence through a densely populated residential section to Queens. Both companies are to operate jointly elevated lines in Queens from the Queensboro Bridge to Astoria and Corona. The contracts were the subject of one of the bitterest possible political fights, with the weight of popular opinion ultimately turning in their favor through sheer exhaustion and irritation with the inadequacy of existing transit facilities (*A. Y. B.*, 1912, p. 285). The contracts recognize the principle of the indeterminate franchise after ten years of operation. They provide for municipal ownership from the date of construction and the gradual amortization of private capital contributed toward the building. In so far they are an advance over previous rapid-transit contracts. The chief objection urged against them is the ultra-liberal financial terms allowed the companies. Present profits are guaranteed by the city through the creation of a first lien on earnings after operating expenses. New private capital is granted six per cent. and placed ahead of the city's new investment. According to the opponents of the contracts these preferentials will eat up all the earnings, leaving the city with a heavy load to carry in its annual tax budget to meet its own interest and sinking-fund charges. Construction under the new contracts is proceeding rapidly. The entire system will be completed in between three and four years. The city made no attempt during the negotiations to recover control over the outstanding perpetual franchises of the elevated railroads, although these are welded into the general plan. The new franchises for extending and enlarging the elevated lines by third tracking are indeterminate, but contain the curious provision that if recaptured by the city they may not be used for rapid-

transit purposes, thus making the possibility of capture so remote as to be negligible. (See also *Municipal Ownership, infra,* and *XXIII, Civil Engineering.*)

Indeterminate Franchises in Indiana.—One of the most interesting franchise provisions in our state statutes is contained in the Shively-Spencer Utility Commission Act passed in Indiana in 1913 (House Bill No. 361). Section 100 provides:

> Every license, permit or franchise hereafter granted to any public utility shall have the effect of an indeterminate permit subject to the provisions of this Act and subject to the provision that the license, franchise or permit may be revoked by the Commission for cause or that the municipality in which the major part of its property is situated may purchase the property of such public utility actually used and useful for the convenience of the public at any time as provided herein, paying therefor the then value of such property as determined by the Commission and according to the terms and conditions fixed by said Commission. . . . Any such municipality is authorized to purchase such property and every such public utility is required to sell such property at the value and according to the terms and conditions determined by the Commission as herein provided.

Any utility company prior to July 1, 1915, may surrender its franchises and accept from the Public Utilities Commission in their place an indeterminate permit. By so doing it is deemed to have consented to municipal purchase of its plant as provided in the act. As an inducement to persuade companies to accept indeterminate grants, it is provided that in cities where companies are so operating, no competing municipal plant shall be erected without the express consent of the Public Utilities Commission. The Commission is given power to declare municipal franchises unreasonable and void and to grant franchises direct. The act is radical and its practical operation will be watched with great interest by other states. The duration of franchise grants is one of the most difficult franchise problems to solve. The indeterminate grant is the most promising form yet devised. (See also *Public Service Commissions, infra.*)

Cleveland Street Railway Franchise.—The whole country is interested in the experience of this city under its famous settlement ordinance of 1910 (*A. Y. B.*, 1910, p. 228). It marked so distinct an advance in municipal control of transit that difficulties in details of administration have more than local interest. Differences between the city and the Cleveland Railway Co. in June led to the appointment of a board of arbitration as provided in the franchise. C. N. Duffy, Vice-President of the Milwaukee Electric Railway and Light Co., A. B. Du Pont, City Engineer of Cleveland, and Judge John M. Killets, of the United States Circuit Court, were named to decide two questions in dispute: "(1) Should the present allowance for operating expenses as defined by the ordinance be increased, and if so by what amount? (2) Should the present allowance for maintenance, renewals and depreciation be increased, and if so by what amount?" The decision of the board was in favor of the city, holding that present allowances are sufficient.

PUBLIC SERVICE COMMISSIONS

Legislative Tendencies.—These are stirring days in the field of public-utility regulation. During 1913, 42 states held legislative sessions and in 17 of them the Governors urged the passage of public service commission laws or the strengthening of existing laws. A large volume of legislation affecting public utilities was passed, including a number of statutes creating new state commissions. In the majority of cases the new commissions are constructed along the lines familiar through existing legislation. Most of them are given ample regulative powers. The year's legislative record shows the steady advance of the state commission system as opposed to regulation by local city commissions. It is true that the advance has been fought vigorously by a number of cities as opposed to the principle of "home rule." The League of Nebraska Municipalities, for example, adopted strong resolutions against centralized control. So, too, did the

League of Commission Governed Cities of Illinois. In Minnesota the legislature passed a bill permitting the establishment of city commissions. It was vetoed by the Governor as wrong in principle and a general state commission was recommended. Missouri, one of the pioneer states in the matter of city commissions, abandoned the plan in favor of a state commission. Spokane and Seattle tried hard to secure legislation which would have permitted them to create local boards, but without success. Colorado, however, passed a new utilities act modeled closely upon the California statute, creating a state commission with local option in the matter of city commissions. The law is not in effect, having been suspended by petition for a referendum. The bitterest fight between the state control and "home rule" advocates was in Illinois. Governor Dunne had made a state utilities commission one of the strong planks of his platform. At the same time he strongly favored giving direct control of local utilities to cities of 20,000 and over and of permitting smaller cities to vote themselves under or out of state control. The Governor also recommended the division of the state commission into two parts as in New York, one to devote its attention to the city of Chicago exclusively. In his annual message he said: "The public utility problems of Chicago are so great and so complex as to require the entire attention of such a body of experts." A bill embodying these features was introduced by Representative Rapp. When it was reported out of committee, however, the home-rule section was omitted and a general state commission was provided. The city of Chicago began a hot fight against the measure, but without success. After the passage of the bill the Chicago City Council adopted resolutions requesting the Governor to veto it as "a vicious measure subversive of the rights of the people of Chicago and other municipalities." A telegram signed by the Mayor and by 67 of the 70 aldermen was also sent to the Governor in opposition to the bill. It was signed, however, on June 30.

Model Public Utilities Law.—In 1906-7 the National Civic Federation made an exhaustive study of the actual working of municipal ownership of public utilities. The result was an exceedingly valuable and authoritative report. The advent of the public service commission plan of state control in 1907 and its rapid development all over the United States has been widely heralded by its advocates as an effective substitute for municipal ownership, having practically all of its advantages and none of its objections. As a logical supplement to its analysis of municipal ownership, the Federation undertook a thorough study of public-service regulation, with the object of determining how far this claim is true and to serve as the basis for the drafting of a model public service commissions act which will represent the judgment of the leading experts in the country. Dr. John H. Gray of the University of Minnesota was placed in direct charge of the investigation under the supervision of a committee of distinguished experts. The work has been completed during the year. As stated in a recent interim report, the chief object has been "to evolve if possible a working plan, adaptable in the main to every part of the country, whereby public utilities may be regulated by the state wisely and in the interests alike of the public and of themselves." Special reports have been prepared on the regulation of capitalization, the sliding scale method of rate making, and the relative advantages of state and local municipal control. Studies were made by special experts of foreign conditions, particularly the English method of control of capitalization through public auction and letting of securities. Court decisions have been compiled and analyzed. Special sub-committees have investigated and reported upon uniform accounting systems, capitalization, forms of reports, franchises, rates and service. A valuable analysis of the existing statutes has been made in such form that similar provisions can be conveniently examined. The completed work should prove of great value to states adopting new public utility acts and to those which are revising and strengthening existing laws.

District of Columbia.—Since 1908 the Interstate Commerce Commission

has had supervision over the service of the street railways of the district. In 1909 the accounts of local gas and electric companies were placed under its control. An attempt was made in 1910 to relieve the Commission of these collateral duties and to give to the Commissioners of the District of Columbia the powers of a public service commission. Again in 1911 President Taft strongly urged Congress to make this change. It has finally been effected by the District of Columbia Appropriation Act for 1913-14 (H. R. 28499), section 8 of which provides that the Commissioners of the District of Columbia shall be ex-officio a Public Service Commission. The new act is elaborate and drastic, giving to the new Commission broad powers of control. It is modeled closely on the Wisconsin and New York statutes. All street railways, gas and electric companies, express, pipe-line, water-power, telegraph and telephone companies are under the jurisdiction of the Commission. Steam railroads are expressly excluded, as are also the Washington Terminal Co., the Norfolk and Washington Steamboat Co., and companies engaged in interstate traffic upon the Potomac River and Chesapeake Bay. Full power is granted to the Commission to fix rates and to supervise and control service. No securities may be issued without its approval. Uniform accounting systems are to be prescribed. Other provisions of the act are in the main those which have become familiar in the public utility legislation of all of the more progressive states. A novel provision of the act places the cost of investigation upon the public utility where rates are held by the Commission to be unreasonable. An appropriation of $40,000 was made to cover the expenses of the Commission for the fiscal year 1914.

Colorado.—The legislature passed a Public Utilities Act modeled closely on the California law. It creates a strong state commission with broad regulative powers, but leaves local option for the establishment of municipal commissions. The law has been suspended by referendum petition signed by over 18,000 voters. Two state-wide Public Utility bills, one advocated by the Direct Legislative League of Denver and the other by the Denver Trades and Labor Assembly, were defeated by vote of the people during the year.

Delaware.—The state is unique in having a general state Public Utilities Act applying to but one city, Wilmington. There has been considerable difference of local opinion as to the success of this Commission. A bill to extend its jurisdiction over the whole state was considered during 1913. It was supported by Governor Miller, but failed of adoption.

Idaho.—The Public Utilities Act adopted in Idaho on March 13, 1913 (House Bill 21), reflects local conditions in the emphasis placed on the rate-making and service-regulating functions of the new Commission to the exclusion of powers of control over the financial operations of utility corporations. The Commission consists of three members appointed for six years with salaries of $4,000. It is "vested with power and jurisdiction to supervise and regulate every public utility in the state and to do all things necessary to carry out the spirit and intent of the provisions of this act." "Public utility" is defined as including all common carriers, pipe-line, gas and electric companies, telegraph and telephone companies, wharfingers and warehousemen and all water companies except those constructing irrigation works. The Commission may regulate rates, establish standards of service, and control competition. It may examine corporate records, compel attendance of witnesses, and enforce its orders in the courts by the collection of penalties for disobedience at the rate of $2,000 a day. The Commission may prescribe uniform systems of accounts, but has no control over the issue of securities nor over dividends. The Act is decidedly weak in its failure to profit by the unfortunate experience of other states which have tried to regulate rates without reference to securities. It is generally recognized that the relation between capitalization, corporate debts and rates for service is so close that the state must regulate all three to maintain successful control over the charges and service of utilities.

Illinois.—For a number of years there has been a strong party in Illi-

nois in favor of public utilities legislation. The state legislature meets biennially. Two years ago the subject was referred to a legislative committee, with instructions to report in the session of 1913. Senator Dailly was made chairman of this committee, which was appointed by the Republican majority in the legislature. The committee made a careful study in a number of states, notably New York, Wisconsin and Massachusetts, and held extended hearings. Its report presented the draft of a law based very largely upon the Wisconsin statute. In 1912, however, the Democrats carried the state government with a legislature in which no party was in full control. The Dailly bill was quickly disposed of and the fight centered on an administration bill introduced by Representative Rapp. The advocates of home rule, backed by the Chicago city government, opposed any bill which prevented local commissions. The legislature, however, finally adopted a plan for a single state Commission to take office Jan. 1, 1914. The new board is to consist of five members, two to serve until March 1, 1915, two to March 1, 1916, and one to March 1, 1917. Their successors are to be appointed for six-year terms. Not more than three commissioners may belong to the same political party. The salary of each commissioner is fixed at $10,000. Counsel to the Commission is to receive $6,000, and the secretary $5,000. Commissioners are required to furnish bonds for $20,000. The board is to have jurisdiction over all railroads and street railways, telegraph, telephone, heat, refrigerating, light, power and electric companies, storage warehouses and wharfingers. Full power over rates, service and securities is given to the Commission. It is to value utility plants and control mergers, consolidations, leases, and all transfers of franchises. A tax clause is made a part of the new law, requiring public-service corporations to pay a fee of ten cents for every $100 in par value of securities authorized by the commission.

Indiana.—House Bill 361, known as the Shively-Spencer Utility Commission Act, enlarged the powers of the state Railroad Commission to include jurisdiction over street and interurban railways, telegraph, telephone, heat, light, water-power, elevator and warehouse companies. Commissioners are appointed for four-year terms with salaries of $6,000. The act is a strong one. It provides for supervision of service and control over rates. The new Commission is charged with the duty of valuing "all the property of every public utility actually used and useful for the convenience of the public." Uniform accounts may be prescribed and companies compelled to carry depreciation accounts. The Commission may prescribe for each class of utilities "standard commercial units of product or service" and compel reports of cost per unit. Full control over the issue of securities is vested in the commission. Mergers, consolidations and leases must receive its approval. Certificates of public necessity must be obtained before operating a new public utility. Municipalities are prohibited from selling or leasing city-owned plants without the consent of the Commission. A very interesting provision for indeterminate franchises is described on an earlier page (see *Franchises, supra*). The annual appropriation for the Commission is not to exceed $75,000.

Kansas.—A special committee has been appointed to study public-utility legislation throughout the country and to redraft the Kansas Public Service Commissions Act. It consists of J. D. Joseph, N. L. Bowman, J. H. Stavely, William Barrett, S. M. Brewster and F. H. Chase.

Maine.—After several years of discussion the legislature finally established a Public Service Commission to assume office on July 1, 1913. The new board is to consist of three members appointed by the Governor. Of the first Commission the chairman is to hold office for seven years, one of the commissioners for five years, and one for three years. Thereafter all are to be appointed for seven-year terms. The salary of the chairman is to be $5,000 and of the other commissioners $4,500. Jurisdiction is given to regulate railroads, street railways, express, gas, electric and power companies, telephone and water companies. The Commission is to super-

vise rates and service. It may prescribe uniform accounts, approve franchises, and value utility plants. All stock and bond issues must be approved by the Commission. The Act further provides that "no public utility shall declare any stock, bond or scrip dividend or divide the proceeds of the sale of its own or any other stock, bond or scrip among stockholders without the consent of the Commission."

Before the Act became operative a petition for a referendum, signed by 10,000 persons, as required by law, was filed. The Governor on July 29 issued a proclamation fixing Sept., 1914, as the time for holding an election on the bill.

Massachusetts.—Massachusetts was one of the pioneer states in the matter of public-utility control. Beginning in 1869 with a strong board of railroad commissioners, it gradually extended state supervision over practically all other public utilities. This was done, however, not by enlarging the powers of the railroad board, but by creating new commissions and officers until jurisdiction was divided between a Board of Railroad Commissioners, a Commission of Gas and Electricity, a Highway Commission with control over telegraph and telephone lines, and a Commissioner of Corporations. The tendency among the more advanced states has been to recognize the essential similarity of these regulative functions and to give to a single, compact commission powers of control over all classes of utilities. The Massachusetts Commission of Economy and Efficiency devoted considerable attention during 1913 to a reorganization of the various state boards. The result was Chapter 784 of the laws of 1913: "An act to change the name and increase the powers of the Board of Railroad Commissioners." The new board is to be known as the "Public Service Commission." It consists of five members appointed for terms of five years. Not more than three may belong to the same political party. The chairman is to receive a salary of $8,500, the other commissioners $8,000. The new board has the powers formerly exercised by the Board of Railroad Commissioners, the Highway Commission, and the Commissioner of Corporations. The Commission of Gas and Electricity is continued as a separate board. The law covers railroads and street railways, steamship, express and car service, telegraph and telephone companies. Broad powers of control are vested in the Commission. It may regulate rates and service, establish uniform systems of accounts, value utility plants and control the issue of securities. The new legislation greatly strengthens state control of utilities in Massachusetts. The concentration of powers should prove economical and efficient.

Michigan.—House Bill 153 (1913) placed telephone companies in the class of common carriers and made them subject to supervision of the state Railroad Commission. Adequate service at reasonable rates is prescribed and the commission may "make, amend or alter or abolish any rate," regulate any service or facility, and prescribe standards of construction and equipment. It may require the establishment of through service by physical connection of two or more lines. Sales and leases of telephone franchises must be approved by the Commission. New franchises become effective only after a certificate of public necessity has been obtained. Annual reports are prescribed.

Minnesota.—Early in the year Governor Eberhart began a campaign for legislation to creat a strong state utility commission. He encountered serious opposition from the advocates of city commissions. St. Paul already had the nucleus for a local commission in its Commissioner of Public Utilities, one of the members of the general commission by which the city is governed. Other cities joined in the fight to procure a utilities law on the lines of the California statute, which would allow local option in the matter of retaining control or surrendering it to the state commission. The Governor was unable to secure the passage of a state commission act. The legislature did pass a bill giving the state Warehouse and Railroad Commission jurisdiction over telephone companies. This the Governor vetoed as piecemeal legislation. A bill allowing cities to create local regulative boards modeled upon the former Missouri statute and

upon the California Public Utilities Act was passed and vetoed by the Governor as wrong in principle. Nothing further was attempted during the legislative session. The Governor has announced that he will call a special session to consider the matter.

Missouri.—On April 15, 1913, Missouri repealed the law which permitted cities to create public utility commissions by ordinance and created a state Public Utilities Commission. The new board consists of five members appointed for terms of six years with salaries of $5,500. The first commissioners are named, one for two years, two for four years, and two for six years. All must be residents of Missouri of at least five years' standing and not less than 25 years old. The Governor appoints a counsel to the Commission for a six-year term at $4,500 salary. The Commission has jurisdiction over common carriers, pipe lines, gas, electric, telegraph, telephone, water, heating, and refrigerating companies. It has broad powers of financial and service control. It may fix rates and standards of service and establish uniform systems of accounts, must approve franchises before they are valid, and controls stock and bond issues. The law provides for physical valuation of utility plants for the purpose of taxation and as a basis for rate making. It gives the Commission power to control competition through its right to grant or withhold certificates of public necessity before beginning construction work. The new law automatically abolishes local commissions in St. Louis, St. Joseph, Joplin and Chillicothe. The members of the new Commission are: John M. Atkinson, formerly Assistant Attorney-General of the state; John Kennish, a former justice of the state Supreme Court; Prof. H. B. Shaw, Dean of the Department of Engineering of the state university; and Frank A. Wrightman, a member of the former state Railroad Commission.

Montana.—By Chapter 52 of the laws of 1913 (approved March 4) the Railroad Commission was made *ex officio* a Pubic Service Commission, with the proviso that "the business of the Public Service Commission shall be kept entirely separate from that of the Railroad Commission." The Public Service Commission is to supervise private and municipal heat, street-railway, light, power, water, sewerage, telegraph and telephone service. Full power is given it to regulate service and rates, value property and establish uniform systems of accounts. The Commission has no power over financial operations nor over mergers, leases, sales of franchises or security issues. The sum of $15,000 was appropriated for the new work.

New York.—With the election of Governor Sulzer it seemed for a time that radical changes were to be made in the method of public service regulation. Early in the year the Governor said:

> I came very near putting in my annual message a recommendation for the consolidation of the two Commissions and for cutting down the salaries of the commissioners to $10,000 a year. Five or seven men at that salary ought to be able to do all the work of the two Commissions. Yet these ten men get $15,000 a year and what on earth they do for their money I have been unable to discover.

The bitter fight between the Governor and the legislature which began over the question of direct primaries and ended in his impeachment postponed any possible hostile action against the Commissions. It also made it practically impossible for the Governor to secure confirmation of his appointments to the Commission of the Second District. There were three vacancies to be filled in this body. Commissioner Olmsted had held over from the previous administration, although not reappointed. Commissioner Douglass was a recess appointment, and Chairman Stevens' term expired on Feb. 1. To fill Commissioner Olmsted's place the Governor appointed Judge Hodson of Buffalo, He was confirmed. No further nominations were submitted until July 8, when the Governor named Charles J. Chase, a locomotive engineer in the employ of the New York Central Railroad, in place of Commissioner Douglass, and William E. Leffingwell, a hotel proprietor, in place of Chairman Stevens. Neither appointment has been confirmed by the state Senate. Commissioner Martin S. Decker was designated by the Governor, on July

1, 1913, as Chairman in place of former Chairman Stevens.

Of great importance to New York City was the vacancy in the Commission of the First District, caused by the expiration of the term of Chairman Willcox. The Commission was divided three to two on the question of the proposed subway contracts, the biggest transportation problem in the world. The Chairman was one of the majority. So acute was the fear that negotiations would be upset by a change, that a majority of the Board of Estimate and Apportionment of the City of New York petitioned the Governor to allow Mr. Willcox to continue in office. The Governor, however, appointed Edward E. McCall in his place. The new Chairman voted on the subway contracts as his predecessor had done.

A very large number of bills affecting the Commissions were considered by the legislature, but the only one of any importance which was passed enlarged the jurisdiction of the Commissions to include baggage and transfer companies.

North Carolina.—The Corporation Commission has been given "power, control and supervision of all electric light, power, water and gas companies and corporations other than such as are municipally owned or conducted, and of all persons, companies and corporations other than municipal corporations . . . engaged in the business of furnishing electricity, electric light, current or power and gas as it now has over railroads and other corporations." Full power is given to fix rates and regulate service.

Ohio.—House Bill 582 abolishes the Public Service Commission and creates in its stead a Public Utilities Commission of three members, which is little more than a state board, charged with the duty of valuing "the property of every public utility or railroad in the state, used and useful for the service and convenience of the public," for the purpose of "ascertaining the reasonableness and justice of rates and charges for the service rendered . . . or for any other purpose authorized by law." The new commissioners are appointed for six-year terms with salaries of $6,000. Not more than two of them may belong to the same political party. The Commission may prescribe uniform systems of accounts, such systems, "when practicable, to conform to the system prescribed by the Tax Commission of Ohio." Elaborate provisions are made for the method of valuation, including rehearings and appeals. O. H. Hughes, a member of the former Public Service Commission, W. L. Dechant, and E. L. Doty are the new commissioners.

Oklahoma.—House Bill 156 (effective March 25, 1913) extended the powers of the Corporation Commission to include the regulation of water, heat, light and power companies. Power is given to establish rates and prescribe rules and standards of service. House Bill 723 (1913) extends the Corporation Commission's power to include gas pipe-line companies.

Oregon.—As noted in the YEAR BOOK for 1912 (p. 282), a Public Utilities Act was passed in that year, but its operation suspended until passed upon by the people at a referendum election. On Nov. 5, 1912, the Act was approved by a small majority.

Pennsylvania.—In this state the need for effective utility control has been very pressing. The Railroad Commission has had practically no power, its duties being solely to investigate and "recommend changes." Utility bills have been considered at each legislative session for a number of years. On July 1, 1913, the "Public Service Commission of the Commonwealth of Pennsylvania" was finally created to take office on Jan. 1, 1914. The act was passed only after a bitter fight, during which it was repeatedly charged that corporate influences were at work to introduce provisions to destroy its effectiveness. Dean Lewis of the University of Pennsylvania Law School led the fight to secure a thoroughly progressive statute. The act as passed is strong and should prove effective, especially since the Commission appointed by the Governor is an excellent one. The new board consists of seven members appointed by the Governor for terms of four, five, six, seven, eight, nine and ten years. The salary of the chairman is $10,500, and of the other commissioners $10,000. The jurisdiction

of the Commission extends to the regulation of railroads, street railways, gas and electric companies, pipe lines, baggage-transfer and express companies, ferry, turnpike, bridge and wharf companies, and telegraph, telephone, heating, refrigerating, water and sewerage companies. The Commission has full power over rates and service, supervision of security issues, and power over accounts. The members of the new Commission are Nathaniel Ewing, S. L. Tone, who for over 20 years was identified with the Pittsburgh Railways Co., S. W. Pennypacker, former Governor, Emory R. Johnson, Professor of Transportation and Commerce in the University of Pennsylvania, Milton J. Brecht, and two bankers, Charles S. Wright and Frank M. Wallace.

South Dakota.—A Public Utilities Act was urged by the Governor in his message to the legislature of 1913, but failed of adoption in either house.

Tennessee.—The 1912 report of the state Railroad Commission contained a strong recommendation to extend the board's jurisdiction to include express companies and to give it control over the rates of telegraph and telephone companies. No legislation was passed however.

Utah.—Public Utility Acts were introduced in both branches of the legislature during the 1913 session, but failed of adoption.

Vermont.—Subscribers of the New England Telephone Co. have tried to secure a reduction in rates through the Public Service Commission. The Commission refused to order the desired change. Thereupon the Governor appointed a special commission, consisting of H. F. Graham and J. H. Cook, to investigate the rate question and report necessary legislation. Commissioner Babbitt promptly resigned, but the two remaining members of the Public Service Commission defied the Governor to remove them. He removed Charles D. Watson, the Chairman, and requested the resignation of Commissioner Warren. The Commission was thereupon completely reorganized under the chairmanship of R. C. Bacon.

West Virginia.—By a law which went into effect May 21, 1913, the state created a Public Service Commission of four members. The original board consists of commissioners appointed for two, four, six and eight years. Their successors are to be appointed for eight-year terms. At least one commissioner must be a lawyer of not less than ten years' standing. The Commission elects its own Chairman. Salaries are $6,000. The total annual cost of the new board is fixed at $60,000, which is to be raised by levying a special license fee upon corporations regulated, apportioned by the state Auditor. The law covers common carriers, telegraph and telephone, gas, electric, hydro-electric and water companies. The Commission is given ample powers of rate and service control, but has no jurisdiction over the financial operations of public-utility corporations. The Commission consists of V. L. Highland, Chairman, Howard N. Ogden, Charles H. Bronson, and Wade C. Kilmer.

Status of Public Service Commission Legislation.—For convenience of reference the following is a list of states and cities with Public Service Commissions in operation at the close of 1913:

Public Service Commission States

California.	Nevada.
Connecticut.	New Hampshire.
District of Columbia.	New York.
Idaho.	Ohio.
Illinois.	Oregon.
Indiana.	Pennsylvania.
Kansas.	Rhode Island.
Massachusetts.	Vermont.
Michigan.	West Virginia.
Missouri.	Wisconsin.
Montana.	

Arizona and North Carolina have Corporation Commissions with many of the broad powers of public service commissions. Colorado and Maine have utility laws, the operation of which have been suspended by referendum.

Partial Control of Public Utilities

Iowa.	Oklahoma.
Louisiana.	South Carolina.
Minnesota.	Tennessee.
Mississippi.	Virginia.
Nebraska.	

City Commissions

New York.	Wilmington, Del.
Los Angeles.	

St. Paul (one member of city commission).

Seattle (single commissioner).
Houston (single commissioner).

MUNICIPAL OWNERSHIP

There is a growing tendency in the United States to approve of municipal ownership in a number of fields where only a very few years ago only "socialists" advocated city activity. In 1913 the movement for municipal ice plants and municipal newspapers was noteworthy. In New York City the largest investment of city capital in transportation systems ever undertaken was agreed upon.

New York Subways.—On March 19, 1913, the city of New York signed the contracts for the extension and operation of its rapid-transit system, committing itself to the most stupendous municipal-ownership plan in the world. The present aggregate capital investment in rapid-transit railroads is about $250,000,000, of which the city has contributed about $50,000,000 in subway construction. The capacity of existing facilities is roughly 800,000,000 passengers per year. The new contracts require the investment of $330,000,000 of new capital, of which the city will contribute about $175,000,000. The capacity of the combined system, new and old, will not be less than 2,000,000,000 passengers per year. The new subways are to be the property of the city from the beginning. Provision is made for the amortization of the entire investment of private capital over the periods of the contracts. The city may terminate the contracts before their expiration and recapture subway lines in seven separate divisions. It has reserved the right to require the operating companies to incorporate extensions in its system. The city has assumed the risk of the enterprise, reducing private investment to what practically amounts to a bond basis, with a preference in the division of income and a bonus in the form of a share in profits after the city's investment is taken care of. (See also *Franchises, supra.*)

New York City Freight Railways.—On July 10, 1913, the city adopted plans for a comprehensive terminal railroad system extending along the Brooklyn waterfront from Brooklyn Bridge to Bay Ridge, a distance of several miles. The new road is to be municipally constructed and owned. Its estimated cost is approximately $12,000,000. The object of its construction is to coördinate existing freight-handling facilities and to open for development an important waterfront section which is now practically isolated, owing to lack of rail connection. It is proposed to lease the line, when built, to an operating company formed of all the trunk-line railroads reaching the port of New York. The special committee of the Board of Estimate and Apportionment having the matter in charge, recommended on June 6 that the lease be made upon the basis of a guarantee of interest and sinking fund upon $7,500,000 of city capital, and that the city carry any deficit in excess of this amount for a term of years to be agreed upon, in order to give traffic a chance to develop under favorable conditions. The city has taken title to a part of the necessary land and it is planned to proceed with the project as rapidly as circumstances permit.

Detroit Street Railways.—A substantial majority of the voters have for several years favored municipal ownership and operation of the street-railway system. The City Council on the other hand has tried to renew the expired franchises of the private operator. After the defeat by referendum vote of the so-called Thompson-Halley ordinance, which would have effected this result, the popular demand for city ownership gathered strength rapidly. On April 7 an amendment to the city charter was adopted, providing for municipal ownership and operation of all the street-railway lines in the city. Provision is made for a non-salaried board of three managing commissioners, appointed and removable by the Mayor. This board is to be in full control, with authority to appoint a general manager and subordinate officials. The rate of fare to be fixed at an amount sufficient to pay operating expenses, interest on capital invested, and "a sinking fund to pay the principal of the general bonds issued as soon as practicable, to the end that the entire cost of said railroad system shall be paid eventually out of the earnings thereof." The validity of the municipal-ownership

amendment is being tested in the courts by those interested in the private railway corporation.

San Francisco Street Railways.—The Geary Street Municipal Railway of San Francisco began operation of regular car service on Dec. 28, 1912. Its opening marks the successful outcome of a contest for municipal ownership dating back to 1896, when the private corporation owning the Geary Street line attempted to secure a 50-year franchise to supplement its franchise expiring in 1913. After three unsuccessful attempts on the part of advocates of municipal ownership to secure a vote favorable to city control of the line, a victory was finally won at an election in December, 1909. The present line is five and a half miles long, and represents a city investment of about $1,100,000. It is only the beginning of an extensive municipal system.

St. Louis Subway.—A constitutional amendment was adopted by the Missouri legislature for submission to the voters in the fall of 1914, permitting the city of St. Louis to construct a municipal subway system and to issue bonds for the purpose up to $77,000,000.

Municipal Ice Plants.—There has been a widespread attempt during 1913 to establish municipal ice plants in various cities. In two cases the right of a city to enter this new field of activity has been tested in the courts with directly opposite results. Schenectady, under the Socialistic rule of Mayor Lunn, began the manufacture and sale of ice. The matter was presented to the courts on an injunction secured by a taxpayer. The city contended that ice is only a form of water and that therefore a city which has power to supply water can also sell ice to its citizens. The court held that "ice is not water," and that it was *ultra vires* for a city to enter the ice business without express authority in its charter. The Georgia Supreme Court in a similar case (Holton *v.* City of Camilla, 132 Ga. 560) held exactly the reverse, saying that when the city supplies ice as part of its water system, "it merely by certain processes changes the form and temperature of a part of the water supply by that system."

A plan for an experimental municipal ice plant was advocated during the spring of 1913 by President McAneny of the Borough of Manhattan, who proposed to use the surplus electric power from the plants of certain public buildings to operate small plants to supply city offices and institutions. An appropriation of $32,000 for this purpose was approved by the Board of Aldermen, but vetoed by Mayor Gaynor.

Bridgeport, New London and Waterbury have all given considerable favorable attention to the possibility of establishing city ice plants under enabling acts recently secured.

Municipal Newspapers.—The *Los Angeles Municipal News*, which was established as an official weekly by vote of the people in December, 1911, and which began publication in April, 1912 (*A. Y. B.*, 1912, p. 286), was discontinued on April 9, 1913, as the result of an adverse vote at a special election. According to George H. Dunlop, the former Chairman of the Newspaper Commission, the chief reasons for the vote were lack of popular interest, reactionary tendencies in municipal politics, opposition of privately owned newspapers and the cost of publication, which amounted to $36,000 per year. At the general election, at which the paper was established, over 100,000 votes were cast, while at the special election only 39,755 voters expressed their views.

Baltimore began the publication of a municipal monthly, the *Municipal Journal*, on Jan. 15, 1913. Atlantic City, N. J., established a municipal newspaper during 1913 under the title of *Atlantic City Commission Government*. Lexington, Ky., issued its new municipal monthly, *The City of Lexington*, on April 15, 1913.

WATER SUPPLY

New York.—The two largest water supply projects in the country, the new systems of New York and Los Angeles, progressed favorably during 1913. In New York in September the huge deep rock tunnel under the East

River was completed except for the lining. This conduit is 11 ft. in diameter and will supply a large part of the Borough of Brooklyn with Ashokan water. The main reservoir at Olive Bridge is ready for filling and contracts were let during the year, at a cost of over $1,000,000, for paving the permanent roads around it. As soon as these are completed, the reservoir can be filled.

The most important event in connection with New York's water supply during 1913 was the decision of the Board of Estimate and Apportionment not to construct the proposed enormous filtration plant at the Jerome Park Reservoir. Eight million dollars had been appropriated for the purpose and bids received for the first section of the work, when the whole project was attacked by the Citizens' Union and the Bureau of Municipal Research as an unnecessary expense. The filter was planned to purify the existing Croton supply. Analysis of this water indicated to the satisfaction of the opponents of the filter that it was not dangerously contaminated and that an improvement in the patrol of the watershed would remove even the existing slight pollution. After a careful examination by experts, the Board of Estimate and Apportionment rescinded the appropriation, adopting the views held by the majority of its engineering advisory board. A careful study of the watershed is being made to determine the most effective method of control, and experiments are under way to decide whether chemical treatment of the water is desirable. It is proposed also to drain and clean the storage reservoirs in Central Park through the construction of temporary cut-offs to divert the water. The magnitude of this task is apparent when it is considered that the larger of the two reservoirs contains 1,000,000,000 gal. of water. It was found too that much of the pollution in the domestic supply was due to the foul condition of private storage tanks used to increase the pressure. A systematic inspection of these tanks is contemplated. (See also XXIII, *Civil Engineering.*)

San Francisco.—The efforts of San Francisco during 1913, to secure an enlarged and adequate water supply, have aroused much interest. The city proposes to impound a supply in the Hetch Hetchy Valley, which, being part of a national park, can be entered for this purpose only by permission of Congress. A favorable report on the project was made by the United States Army engineers, who admitted the availability of the valley for water-supply purposes and the probable saving in cost to San Francisco compared with other possible sources. The matter was then presented to Congress and on Sept. 3, despite a vigorous protest against the alleged spoliation of a national park, the House of Representatives passed the bill by a vote of 183 to 43 (H. R. 7207, 63d Cong., 1st Sess.). The Senate passed the bill on Dec. 6 by a vote of 43 to 25 and it received the President's signature on Dec. 19. The main argument in favor of the use of the Hetch Hetchy Valley instead of other more or less adequate supplies was the saving of cost, estimated at not less than $20,000,000. (See also X. *Public Lands;* and XXIII, *Civil Engineering.*)

LIGHTING

Street Lighting.—Developments in the matter of public lighting have not been important during 1913. There has been a steady improvement in street lighting in most of the cities of the country, but it has been along well-established conventional lines and does not call for special comment. Chicago has passed a general ordinance standardizing electric lighting poles to secure a uniform treatment. New York has established electrically lighted isles of safety on Fifth Avenue north of 42d Street, one of the most congested traffic thoroughfares. There has been a vigorous campaign throughout the country for lower lighting rates, partly due to the increase in the number of public service commissions entrusted with broad powers of rate regulation (see *Public Service Commissions, supra*).

Gas Rates.—During the year many cities have been successful in compelling a reduction in the price of gas furnished by private companies.

New Jersey.—The Public Service Commission ordered a reduction in the price of gas in the Paterson and Passaic district from May 1, 1913, to 90 cents per 1,000 cu. ft. The former rate was $1.10, with a rebate of ten cents per 1,000 cu. ft. for prompt payment. Newark secured a 90-cent rate from Feb. 1, 1913.

Baltimore.—The Maryland Public Service Commission established a 90-cent rate for gas with a 10-cent reduction per 1,000 cu. ft. if bills are settled within ten days. The new rate became effective July 1, 1913.

Buffalo.—Upon complaint of the city authorities, the Public Service Commission investigated the rate charged the city for gas and reduced it from $1.00 to 90 cents per 1,000 cu. ft. The rate to private individuals remains $1.00.

Des Moines.—The city administration, after a hard fight for 90-cent gas finally secured an agreement with the company to give this rate a three years' trial to test whether it is fair.

Haverhill, Mass.—This city secured 80-cent gas on Feb. 1, 1913.

Omaha.—The rate in this city is $1.15 per 1,000 cu. ft. A vigorous fight is being made to secure a substantial reduction. William D. Marks, as expert for the city, has reported that a rate of 93 cents is fair. James Hill of Chicago has been employed to audit the accounts of the Omaha Gas Light Co.

Philadelphia.—Mayor Blankenburg announced on Jan. 1, 1913:

> I at last feel able to redeem my pledges made during the mayoralty campaign to ask of Councils a reduction of the price of gas from $1.00 per 1,000 cu. ft. to 80 cents per 1,000 cu. ft. . . . This desirable reduction in the price of gas has been made possible by practical and rational economies instituted in all departments without affecting their efficiency.

He coupled his recommendation with the proviso that if the gas rate was reduced the Councils must nevertheless secure municipal income to make up the difference in revenue, estimated at $1,750,000. The city's contract with the gas company permits the fixing of the rate by city ordinance at any point not below 80 cents from 1913 to 1917 inclusive, and 75 cents from 1918 to 1927 inclusive. The difference between these rates and any actual higher rate goes into the city treasury. The Council, upon receipt of the Mayor's message, fixed the rate at 80 cents, but failed to provide sources of revenue to make up the loss to the city. The Mayor thereupon vetoed the ordinance.

Discrimination in Rates.—An interesting problem in the advantages of preventing discrimination in lighting rates was presented in Denver by the passage of an ordinance prohibiting unequal rates and rebates. Mayor Arnold vetoed the ordinance on the ground that the result would be the closing of every lighting advertising feature in the city and that it would prevent donations of light by the companies for public conventions meeting in Denver.

SEWAGE AND REFUSE DISPOSAL

Pollution of New York Harbor.—The year has been uneventful so far as new sewerage projects are concerned. The pollution of streams and harbors continues to be the chief problem with our sanitary engineers. The study of pollution of New York Harbor was continued by the Metropolitan Sewage Commission during the year. It would have automatically gone out of existence on May 1, but legislation was secured, permitting the continuation of the Commission. It is expected that its work will be completed by next May. Ambitious plans were suggested by the Commission during the year for the construction of an artificial island a considerable distance off shore south of Coney Island, to which sewage could be pumped and where it could be purified by the removal of sludge. The heavy matter removed is to be carried to sea by tank steamers and dumped far enough out so that it cannot effect the harbor. Whether the enormous cost of this plan is prohibitive, it is impossible to tell at this time. The Commission plans to perfect this scheme during the year and to devise a system for control of a main drainage system for the entire city. The Board of Estimate and Apportionment has appointed a special board of engi-

neers to study the drainage plans submitted by the Metropolitan Sewage Commission, consisting of the five consulting engineers of the boroughs of the city, together with the Chief Engineer of the Board.

The controversy with the state of New Jersey, over the pollution of New York Harbor by the projected Passaic Valley Sewer, continued during the year. Plans for disposal near Robbins Reef, which are now in process of completion, are not approved by the New York authorities, who fear not only the pollution, but the shoaling effect of the sludge. During the year several New Jersey towns sought to withdraw entirely from the project, but were restrained by the courts. (See also XXIII, *Civil Engineering.*)

Pollution of the Great Lakes.—The International Boundary Commission, composed of representatives of the United States and Canada, has given considerable attention during the year to the pollution of international waters, especially the Niagara River and parts of the Great Lakes. It has found a degree of pollution which indicates the necessity for federal action to protect the water supply of cities using these sources for domestic purposes. Niagara River water is found to be entirely unfit for use in a raw state.

Refuse Disposal in New York.—New York City has been paying very large sums annually for the disposal of its garbage, although the contractor has secured valuable by-products from its destruction. A special committee of the Board of Estimate and Apportionment worked with the Commissioner of Street Cleaning during 1913 to revise the proposal for contracts to be entered into for 1914. The result appeared when bids were opened. The present contractor proposed to charge the city $130,000 a year on a three-year contract. The new forms of contracts, however, attracted a new contractor who offered to pay the city $62,000 annually for three years for the privilege of collecting the garbage.

Refuse Disposal in Philadelphia.—In order to provide for uniform receptacles and to simplify the collection of rubbish the experiment has been made during the year of requiring the contractor removing the waste to furnish bags which are changed periodically. The plan has worked successfully in a number of large cities in Europe.

Street Cleaning in New York.—During the year a thoroughly scientific system of unit costs was installed in the Department of Street Cleaning in New York City. Careful reports are made daily by foremen in charge of various sections and these are analyzed and tabulated so as to secure units of cost for different classes of pavement and different methods of cleaning. The plan has been tried in the Borough of Richmond for several years and has worked so well that in the city budget for 1913 allowance was made to that borough of a lump sum for cleaning based upon the estimated number of units of work to be performed during the year instead of the ordinary form of budget segregated into salaries and supplies. The budget advisory staff of the Board of Estimate and Apportionment is studying the practical effects of this change and if it proves efficient the scheme will probably be extended in the 1914 budget.

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XII. MILITARY AND NAVAL

THE ARMY

C. E. Kilbourne

ADMINISTRATION

Military Resources. — The armed forces of the United States consist of the regular Army and the Organized Militia, approximating 195,000 in strength. The census of 1910 reported 20,473,684 males of militia age, 18 to 44 years; the reports of the Adjutants-General of the several states for 1913 give the number of males available for service in the event of war as 16,127,357. It is known that the census included males of an age fitting them for service, but who are not available—aliens, persons of unsound mind, criminals and others disabled from various causes. Probably the enumeration of the Adjutants-General, while undoubtedly too small, is nearer the actual number; in either event, it is certain that only about one per cent. of the males who may be called upon under the Constitution for military service in time of war are receiving training for such duty.

Organization.—Following the recommendations of the General Staff (*A. Y. B.*, 1912, p. 292), the regular Army was reorganized on Feb. 15, 1913. The old territorial divisions, with their mismated military units which could not possibly serve together in war, were discontinued. The mobile troops serving within the continental limits of the United States were organized for purposes of training and inspection into three tactical divisions of the three arms combined and one cavalry division. At the same time, four territorial departments were organized, with commanders and staffs different, as far as practicable with the number of officers available, from those of the tactical divisions. The functions of the tactical divisions are distinct from those of the territorial departments, a new departure in the United States in time of peace. The duty of the former is to be prepared in every respect to take the field without delay, fully equipped and thoroughly trained; the duty of the latter is to receive, train and equip recruits and to secure the necessary supplies for the maintenance of the troops in the field and supervise their shipment. Within ten days after the promulgation of the order directing the reorganization it had a practical test when the Second Division was ordered to concentrate on the Mexican border; the order was carried out without affecting the administration of the Central Department, from which most of the troops were drawn. In Hawaii a similar organization has been effected by separating the Hawaiian Department from the First Hawaiian Brigade. In the Philippines the peculiar conditions have made advisable the continuance of the old system.

With the organization of the troops of the mobile Army into tactical divisions, the Coast Artillery troops, formerly included in the commands of the territorial divisions commanders, were organized into three coast artillery districts for the United States proper; the North Atlantic Coast Artillery District, embracing all coast defenses from Maine to the southern entrance of New York Harbor inclusive; the South Atlantic Artillery District, embracing the remainder of the Atlantic and Gulf coasts; and the Pacific Coast Artillery District, embracing all coast defenses on the Pacific Coast. While these districts remained subject to

the territorial department commanders in matters of supply and discipline, they were placed under artillery officers for coast artillery instruction and practice. In the Philippines and Hawaii the coast defense troops continue subject in all respects to the department commanders.

In the War Department the organization is as follows:

The General Staff Corps, formed of selected officers detailed for not exceeding four years;

The Adjutant-General's Department, with a few officers permanently assigned and the remainder detailed from the line;

The Inspector-General's Department, similar in organization to the Adjutant-General's Department;

The Judge Advocate-General's Department.

The Quartermaster Corps, resulting from the consolidation, in November, 1912, of the Quartermaster, the Subsistence and the Pay Departments. The officers are in part permanently assigned and in part detailed from the line;

The Medical Department;

The Corps of Engineers;

The Ordnance Department, with personnel part permanent and part detailed from the line;

The Signal Corps, with personnel part permanent and part detailed from the line; and

The Bureau of Insular Affairs.

A tactical division normally comprises:

Three infantry brigades;
One regiment of cavalry;
One brigade (two regiments) of field artillery;
One pioneer battalion of engineers;
One field battalion of signal troops;
Four ambulance companies;
Four field hospitals;
One ammunition train;
One supply train; and
One pack train.

A cavalry division comprises:

Two or more cavalry brigades;
One regiment of horse artillery;
One pioneer battalion of engineers (mounted);
One field battalion of signal troops;
Two ambulance companies;
Two field hospitals;
One ammunition train;
One supply train; and
Two or more pack trains.

The strength of the different units is normally as follows:

A brigade of infantry or cavalry consists normally of three regiments. A brigade of field artillery consists of two regiments.

A regiment of infantry or cavalry consists of twelve companies or troops, with headquarters and band. The infantry regiment is subdivided into three battalions and the cavalry regiment into three squadrons for tactical training. Six machine guns accompany each regiment, and, in the infantry, a mounted detachment of 21 men is attached to regimental headquarters. A regiment of field artillery consists of two battalions of three batteries each. To each regiment is attached a sanitary personnel varying from three officers and 21 men to four officers and 24 men.

A company of infantry consists of three officers and 108 enlisted men.

A troop of cavalry consists of three officers and 86 enlisted men.

A battery of light or horse artillery has five officers and 171 enlisted men; a battery of mountain artillery, five officers and 165 enlisted men. Each battery of field, horse, or mountain artillery has four guns.

A pioneer company of engineers has four officers and 164 enlisted men.

A field company of the Signal Corps has four officers and 120 enlisted men and is divided into two radio sections and four wire sections.

In the Coast Artillery Corps the tactical chain of command is from the district to the coast defense command, the battle command, the fire or mine command, to the battery. The company is the administrative unit. The strength of companies in the United States and Hawaii is three officers and 104 enlisted men; in the Philippine Islands and the Canal Zone, three officers and 150 enlisted men. The number of companies assigned to a coast defense is decided by the Chief of Coast Artillery, depending upon the importance of the harbor to be defended, the armament to be cared for and the practicability of reënforcing the position, in case of war, with the Coast Artillery Reserves of the Organized Militia.

In addition to the troops enumerated above there are 12 battalions of Philippine Scouts of four companies each and four additional companies not assigned to battalions.

The authorized strength of the regular army is given in the accompanying table. It should be noted, however, that only organizations of the mobile army stationed in the insular possessions are maintained at full strength; for example, the infantry company within the continental limits of the United States is limited at present to 65 enlisted men.

AUTHORIZED STRENGTH OF THE ARMY

	Major-Generals	Brigadier-Generals	Colonels	Lieutenant-Colonels	Majors	Captains	First Lieutenants	Second Lieutenants	Chaplains	Total Commissioned Officers	Enlisted Men
General officers	6	15	....	....	....	.....	.....	.....	....	21	.....
Adjutant-General's Department	....	1	5	7	10	.....	.....	.....	....	23	.....
Inspector-General's Department	....	1	3	4	9	.....	.....	.....	....	17	.....
Judge Advocate-General's Department	....	1	2	3	7	.....	.....	.....	....	13	.....
Quartermaster Corps	1	2	12	18	48	102	.....	.....	....	183	[1]403
Medical Department	....	1	15	24	105	171	[2]280	.....	....	[2]596	
Corps of Engineers	....	1	13	20	43	54	50	43	1	225	[3]1,942
Ordnance Department	....	1	6	9	19	25	25	.....	....	85	735
Signal Corps	....	1	1	2	6	18	18	.....	....	46	1,212
Bureau of Insular Affairs	....	1	1	....	1	.....	.....	.....	....	3	.....
Fifteen regiments of Cavalry	....	....	15	15	45	225	225	225	15	765	14,144
Six regiments of Field Artillery	....	....	6	6	12	66	78	78	6	252	5,513
Coast Artillery Corps	....	1	14	14	42	210	210	210	14	715	18,607
Thirty regiments of Infantry	....	....	30	30	90	450	450	450	30	1,530	33,107
Porto Rico Regiment of Infantry	....	....	....	....	....	11	10	10	1	32	591
Military Academy	....	....	2	5	....	.....	.....	.....	....	7	630
Detached officers	....	....	8	9	27	77	79	.....	....	200	.....
Additional officers	....	....	31	6	....	.....	.....	.....	....	37	.....
Recruiting parties, recruit depots, and unassigned recruits	....	....	....	....	....	.....	.....	.....	....	.....	7,000
Service school detachments	....	....	....	....	....	.....	.....	.....	....	.....	597
United States Military Prison guards	....	....	....	....	....	.....	.....	.....	....	.....	320
Indian Scouts	....	....	....	....	....	.....	.....	.....	....	.....	75
Total Regular Army	7	26	164	172	464	1,409	1,425	1,016	67	4,750	84,876
Additional force: Philippine Scouts	....	....	....	....	....	52	64	64	....	180	5,732
Grand total	7	26	164	172	464	1,461	1,489	1,080	67	4,930	90,608

[1] Under the Act of Congress approved Aug. 24, 1912, the 6,000 authorized enlisted men of the Quartermaster Corps are not to be counted as part of the strength of the Army.
[2] Includes 91 first lieutenants of the Medical Reserve Corps on active duty and 60 dental surgeons.
[3] Under the Act of Congress approved March 1, 1887 (24 Stat. L., 435), the enlisted men of the Medical Department (Hospital Corps) are not to be counted as part of the strength of the Army. The authorized strength of the Hospital Corps is 3,500 enlisted men.

DISTRIBUTION OF THE COMBATANT TROOPS AND AUXILIARIES
(December 1, 1913)

	Infantry (regiments)	Cavalry, (regiments)	Field Artillery (regiments)	Coast Artillery (companies)	Philippine Scouts (companies)	Engineers battalions	Signal Corps (companies)	Field Hospitals	Ambulance Companies
United States	21	12	4	150[1]	.....	2½	7	3	3
Alaska	1	.....	.....	.....	.....	.....	2	.....	.....
Canal Zone	1	.....	.....	.....	.....	.....	.....	.....	.....
Porto Rico	1	.....	.....	.....	.....	.....	.....	.....	.....
Hawaii	3	1	1	8	.....	½	1	.....	.....
Philippines	3½	2	1	12	52	½	2	1	1
China	½	.....	.....	.....	.....	.....	.....	.....	.....
Totals	31	15	6	170	52	3	12	4	4

[1] Two coast artillery companies are under orders to take station in the Canal Zone.

MILITARY APPROPRIATIONS FOR THE FISCAL YEAR 1914

By Army Appropriation Act, March 2, 1913	$94,266,145.51	
Less the following:		
Construction and maintenance of roads, bridges and trails, Alaska	$ 155,000.00	
Encampments and Maneuvers, Organized Militia	350,000.00	
Equipment of Coast Artillery armories, Organized Militia	185,000.00	
Field Artillery, Organized Militia	1,000,000.00	
Field Artillery ammunition, Organized Militia	500,000.00	
	$2,190,000.00	
Total appropriation for support of the Army		$92,076,145.51
By Military Academy Act, March 4, 1913		[1]1,094,734.87
By Army Act, for Organized Militia	$2,035,000.00	
By permanent legislation for arming and equipping Organized Militia	2,000,000.00	
By permanent legislation for arms, uniforms, etc., for Organized Militia	2,000,000.00	
Total appropriation for support of Organized Militia		6,035,000.00
By Fortifications Act, Feb. 13, 1913	[2]$5,218,250.00	
By permanent legislation, proceeds of sales, ordnance material	75,000.00	
By proceeds of sales, powder and projectiles	6,000.00	
By Sundry Civil Bill, for fortifications, Isthmian Canal	4,870,000.00	
Total appropriation for fortifications and other works of defense		10,169,250.00
By Sundry Civil Act, June 23, 1913:		
Arsenals	$ 643,000.00	
Military posts	140,000.00	
Sewer system, Fortress Monroe, Va	9,291.66	
Barracks and quarters, seacoast defenses, U. S	115,078.00	
Barracks and quarters, seacoast defenses, Philippines and Hawaii	200,000.00	
Cavalry post, Hawaii	350,000.00	
Miscellaneous objects	[1]5,750.00	1,463,119.66
Grand total appropriated for military purposes		$110,838,250.04

[1] $5,000 appropriated under the Military Academy Act for an instruction building at Fort Leavenworth, Kan., was carried under "miscellaneous objects."

[2] Of this, $1,502,350 was for fortifications in insular possessions.

Legislation.—There was no legislation affecting the Army, except the appropriation bills summarized above, during the year. The effect of the legislation of 1912 (*A. Y. B.*, 1912, p. 292) may be summarized as follows:

1. The consolidation of the Quartermaster, Subsistence and Pay Departments into the Quartermaster Corps under a single head has been most successful. The saving in money has been $2,725,955.27; the increase in efficiency has been equally marked.

2. The service corps of enlisted men by reducing the number of noncommissioned officers and privates required for extra and special duty, has resulted in improved training and discipline in companies, troops and batteries.

3. The requirement that company officers shall serve two full years "for duty" with a company, troop, or battery before being eligible to detached service of any kind has been, in the majority of cases, most beneficial. The service schools, the Military Academy and the Coast Artillery have suffered the loss of officers especially trained for their needs, but the increased number of officers with troops, especially captains, has more than compensated for the damage done. In another year the service will have adjusted itself to the new law, when it will become wholly beneficial.

4. So many things affect the recruitment of enlisted men that it is difficult to state the effect of the long enlistment upon recruitment. The seven-year period is generally unpopular with the enlisted force, but it appears that reënlistments have not materially decreased in percentage. For a time it seemed that new enlistments were fewer, but spcially detailed inspectors were sent to the various recruiting offices, with the result that enlistments increased greatly in numbers in the late months of the year. Another year, possibly two or three, must pass before any

authoritative statement can be made on this subject.

5. So far the reserve provided for by the Army Appropriation Act of 1912 is discouragingly small.

6. The reduction of the General Staff Corps has resulted in delaying work that would be of vital importance in war.

7. The discontinuance of extra pay and "double-time" allowance toward retirement for enlisted men serving in the insular possessions promises to be a serious setback to the organizations assigned thereto. The system of permanent organizations in foreign possessions was adopted for reasons of economy in transportation, increased knowledge of and interest in their special mission on the part of the troops, and greater uniformity in the foreign service required of the commissioned personnel. When the system was put into effect experience had demonstrated that the majority of experienced non-commissioned officers would gladly continue on foreign service because of the extra pay and the fact that each year counted double toward the 30 years of service before retirement. The withdrawal of these incentives has resulted in many of the non-commissioned officers taking their discharges when due and either quitting the service for good or returning to the United States (at government expense) to enlist in some organization serving therein.

THE REGULAR SERVICE

Border Troops.—Mention has been made of the fact that within ten days of the order organizing the tactical divisions and brigades in the United States, the Second Division was ordered to concentrate on the Mexican border. On March 3 the concentration had been effected. Assembled at Texas City were the Division Headquarters, one battalion of engineers, two brigades of infantry, one regiment of artillery, one regiment of cavalry, one field company of Signal Corps, with an additional detachment of signalmen, one aero squadron (provisional), one ambulance company, three pack trains and six units of Field Bakery No. 2. The other brigade of the division encamped at Galveston with the remaining units of the field bakery. Though the average distance traveled by the units was 2,000 miles, it is stated that only the traffic regulations with respect to animals prevented the concentration being effected with greater promptness.

The benefit of the maneuvers of recent years was immediately apparent in the manner in which the encampment was established on ground which promised most unfavorably. Roads, bridges, ditches and drains were constructed. Strict sanitation was enforced from the first, with the result that sickness has been practically absent. The non-effective rate has been about one-third of that of the Army at large, and not a single case of typhoid has developed.

A system of instruction, progressive in character, has been followed. The entire division has had small arms practice, and quite a feature has been made of swimming. There have been practice marches and tactical problems for all units, from a patrol to a reënforced brigade of the three arms combined. The system of military education now in force in the Army (*A. Y. B.*, 1912, p. 297), combined with the practical field exercises, has developed a commissioned personnel on which the division commander reports as follows: "Our officers have the most varied training of any body of officers as a whole within my knowledge; all we need is more officers of the same kind." His comment on the discipline of the enlisted force was equally favorable. The maneuvers have been conducted over an extensive territory devoted almost entirely to truck and fruit farms, but the division commander states that "the average boarding school for boys would have furnished more cause for complaint than has arisen from the presence of nearly 12,000 men."

In addition to the Second Division there have been three regiments of cavalry stationed on or near the border; from these the border patrols which have had charge of the enforcement of neutrality have been taken. The most serious action taken by any of these patrols was on Sept. 12 and 13, when a band of 19 Mexican

marauders, who had committed depredations near Carrizo Springs, Tex., were run down by a posse of soldiers and civilians, commanded by Lieut. Terry Allen, 14th Cavalry, and captured after a brisk fight in which two of the Mexicans were killed and three wounded.

The Mobile Army.—In the mobile army, except for the Second Division, there have been no large maneuvers. In the cavalry the main effort has been directed toward securing training in offensive action as cavalry. A board of cavalry officers has been abroad making a study of cavalry tactics in foreign armies. They found that, while our cavalry was second to none in combined action, it was deficient in the mounted action of large units. Much of this deficiency has been overcome by systematic exercises. At the same time the board recommended an improved equipment for cavalry troops which has been adopted and is under manufacture. The new infantry drill regulations, adopted in 1912, are so simple in principle and practical in operation that that arm has had no difficulty in the transition from the old. The infantry has been greatly handicapped by the limit placed on the strength of the companies, which have generally been too small for full value to be had from the training. In the field artillery, greatest attention has been paid to improving the artillery practice. One regiment has been organized as siege artillery, a branch of artillery work which has been neglected in the Army of recent years, except for such instruction in the service of the pieces and in target practice as could be given in the Coast Artillery, where certain siege pieces are kept on hand to be used in case of attack by land on the flanks or rear of the coast defenses.

The Coast Artillery.—In the Coast Artillery a new system of plotting has been adopted in connection with a new method of loading, with a view to securing more uniformity in the ranging of projectiles at extreme ranges. The rate of fire has been somewhat reduced, but the reports so far received indicate that in hits per gun per minute the practice will show a considerable improvement over that of 1912. With the rapid-fire batteries the practice has been conducted so as to give the highest rating to the company which could change targets the oftenest with a given number of rounds and hit each target with the fewest number of ranging shots. Drill and practice with siege pieces has supplemented the work with the fixed armament. The state of training of the coast-defense troops in their special duties has permitted more time to be devoted toward making them available as infantry in a war where their presence was not needed at the fortifications. Especial attention has been given to small-arms practice, and one full month has been devoted to infantry training only, the last two weeks being spent in the field in practice marches and tactical exercises.

As the infantry is handicapped by the small size of the companies, so is the Coast Artillery by insufficient men. The authorized strength of the corps is 715 officers and 18,140 enlisted men. To man the defenses in the United States there are required for guns 1,592 officers and 37,094 enlisted men, and for submarine mines, power plants, searchlights, and the like, 169 officers and 4,970 men, a total of 1,761 officers and 42,064 enlisted men. The mines, searchlights, etc., will always have to be served by personnel from the regular Army, but it has been hoped that the states would be able to support one-half the manning personnel for gun defense. In this expectation the War Department has been disappointed, as the militia has less than half the number of men required to man one-half the coast guns. With the rapid approach of the completion of the defenses in the Philippines, Hawaii and the Canal Zone, 263 officers and 6,234 men must be supplied. This will leave for gun defense in the United States 283 officers of the regular service and 479 of the militia, and 6,936 enlisted men (regulars) and 7,267 militia, which is less than 40 per cent. of the number required for a single relief.

The Supply Corps.—Since the lesson of the Spanish War, in which the volunteers were sent into the tropics in heavy blue uniforms and equipped with obsolete smoke-producing weap-

ons, the various departments charged with the supply of the Army have devoted a great deal of attention toward equipping the troops actually in service with everything that would be required, and the accumulation in reserve depots of the arms, ammunition, equipments, tentage, blankets, clothing, and all other unperishable articles needed for an army of 502,000 men, including coast-defense troops. At the same time a system has been perfected by which issues necessary to bring the organizations of the regular Army and the Organized Militia to war strength equipment would be made almost automatically.

In the Ordnance Department the reserve supplies are in an encouraging condition except for field-artillery ammunition. There are 180,000,000 rounds of smokeless small-arms ammunition, 717,000 of the latest type Springfield rifle, 1,176 machine guns and 90 per cent. of the reserve ammunition for coast-defense guns. Only about 20 per cent. of the required reserve ammunition for field artillery, however, has been provided, and Congress has been asked to appropriate $6,000,000 for this class of ordnance alone.

While the reserves of the Quartermaster Corps are not so far advanced as those of the Ordnance Department, considerable progress has been made. For example, a camp was established at Gettysburg during July for 57,000 veterans of the Civil War. They were supplied from the reserve depots with tents, bedding, kitchens, mess equipment, in short, with everything necessary for their comfort. Also in the disastrous Ohio floods a great amount of suffering was relieved by the same means. (See also XXIII, *Engineering.*)

The most important developments during the year in the Ordnance Department have been the equipping of the mountain artillery with a three-inch piece using the same projectile as the light artillery, the successful completion of the long range mortars to be used in the seacoast forts of the Panama Canal, the adoption of the split trail for light artillery, thus greatly increasing the field of fire of these pieces from any one position, and the issue to the army of the new Colt .45 automatic pistol, to replace the old revolvers. There has been some doubt that the Army rifle is the best that could be obtained, but its critics have been silenced by the fact that it won in the contests at the Olympic Games, at Buenos Ayres, at the Interlegation Meet in China, and at the International Tournament at Camp Perry. Altogether the rifle has been used in competition with the small arm of 19 different foreign nations during the year and has been uniformly successful.

The Engineer Corps—The work of this corps in the coast defenses of Hawaii has been completed. Two of the important forts guarding the entrance to Manila Bay have been completed and the other two nearly so. In the Canal Zone the engineering features of the defenses are well in advance of those of the other departments. The work of the Army engineers in river and harbor improvements is reviewed elsewhere (see X, *Waterways*).

The Signal Corps.—The Signal Corps has been endeavoring to break away from all civil functions so as to devote the effort of the entire prsonnel to purely military duties. With this object, Gen. George P. Scriven, who succeeded Gen. Charles J. Allen as Chief Signal Officer when the latter retired from active service on Feb. 14, has recommended that the Alaskan telegraph system be turned over to the Post Office Department. This system consists of 2,636 miles of submarine cable and 1,047 miles of land line with 70 stations, ten of which are radio stations. The amount of business in the fiscal year 1913 was $364,356.30, an increase of $7,012.85 over 1912. The work has required five officers and 242 enlisted men.

The Signal Corps maintains radio stations at five important coast defenses and 18 other army posts (10 of which are in Alaska, seven in the Philippine Islands and one in Hawaii), besides the stations on three cable ships, nine harbor tugs of the coast defenses, and 14 transports. With regard to these last, all have now been so equipped as to enable the wireless to be operated for six

hours from sources of energy independent of the ship's power.

In its work with the mobile army the most important Signal Corps developments have been a portable telephone switchboard for use in camps, on target ranges and in the field; a portable radio pack set doubling the output of the old set without additional weight; a radio set for use in aeroplanes, which has been successfully operated over a distance of 13 miles; and a system of signaling from aeroplanes to field artillery in action.

Military Aviation.—The United States, which was first in the field of military aviation, has fallen behind every other first-class power. The situation is the more serious because popular interest in aviation has decreased and the corps of volunteer fliers it was so confidently expected would be developed can no longer be depended upon to supplement the military aviators in case of war.

The following data, gathered August, 12, 1913, give an idea of the relative standing of nations in aeronautical equipments:

Countries	Dirigibles	Aeroplanes	Pilots	Total Personnel	Annual Appropriations
France	22	616	620	1,174	$7,400,000
Germany	20	420	300	.....	5,000,000
Russia	22	200	80	.....	5,000,000
Great Britian	8	168	135	756	3,000,000
Japan	3	23	20	.....	2,000,000
Italy	10	153	175	.....	2,100,000
United States	.....	17	19	116	125,000
Mexico	.....	7	5	.....	400,000

The year has brought a great improvement in our small corps of fliers. An American endurance record for pilot and observer of 4 hr. 22 min. was established, and also a record of 540 miles for a non-stop flight. The latter was the more remarkable because of the military sketch of the country covered made by the observer. The sketch was 18 ft. long and was sufficiently accurate for military use. Congress has granted an increase of 37 per cent. in pay to those actually engaged in flying. (See also XXIII, *Aeronautics.*)

The Medical Corps.—The sanitary conditions throughout the Army and the health of the troops have been exceptionally good during the year. The systematic use of typhoid prophylactic has eliminated that disease, the experience in the mobilization of the Second Division proving that it need no longer be feared in field service. In some foreign nations it has been stated that immunization for typhoid reduces resistance to latent tuberculosis. Medical officers of the French service claim the results in that army point very strongly that way. In our Army, however, typhoid vaccination has led to no developments to lend support to this theory of reduced resistance to other diseases. (See also XXX, *Medicine.*)

The introduction of compulsory prophylaxis against venereal diseases, combined with frequent inspections and the stoppage of pay by Act of Congress of men incapacitated for duty by these diseases, has resulted in reducing the non-effectives due to this cause by about 30 per cent. The rate for alcoholism in 1913 has been the lowest since 1873, except for the year 1898. This is believed to be due largely to the forfeiture of pay imposed as a penalty for absence from duty on any account not incident to performance thereof.

The Philippine Government.—The administration of affairs in the Philippine Islands is still under supervision of the War Department, although the government is strictly a civil one. Brigadier-General John F. Pershing, who has been Governor of the Moro Province, was relieved of that duty on Nov. 26 by the appointment of Frank W. Carpenter, who for several years past has been Executive Secretary of the Insular Government. General Pershing is the last military commander to hold a high executive position in the Islands.

There was serious trouble during the

year with the Sulu Moros over the disarmament inaugurated in 1912. The disarmament had proceeded peaceably until the beginning of 1913, when a number of Joloanos under the Datto Amil defied the Government. The Moro Constabulary proceeded against the disaffected band, and in the resulting engagement two American Constabulary officers, Captains Vernon L. Whitney and James L. Cochrun, were seriously wounded. After this engagement, between five and ten thousand Moros of the district, fearing reprisals, stampeded to the fastnesses of Mount Bagsak in northern Jolo. General Pershing by conferences and promises of just treatment brought back to their homes all but about 300 of the people. These proving utterly defiant, and several of them having violated their agreements, General Pershing went quietly to Jolo on the night of June 10 and, taking the garrison from there, together with some Philippine Scouts, proceeded by boat to the coast near Mount Bagsak. The force landed under cover of darkness and surrounded the mountain, thus preventing a second stampede of harmless natives into the heights. Having thus separated the peaceful from the disaffected, a determined attack was made on the morning of June 11. The government troops consisted of Company M, 8th Infantry, and six companies of Philippine Scouts, with two mountain guns which they dragged up the cliffs by block and tackle. For five days the Moros made a most tenacious resistance, resorting to counter attacks with hand to hand fighting again and again. At the end of the five days the Moro leader, Amil, his principal lieutenants and about 200 of his followers were killed or wounded; the others scattered and escaped; there were no voluntary surrenders. Of the government forces Captain T. A. Nichols was killed; the other casualties were 13 enlisted men killed and one officer and 26 enlisted men wounded. There have been several small engagements later incident to the running down of those who escaped, resulting in each case in the capture of the outlaws and their arms. (See also VIII, *The Philippine Islands.*)

THE ORGANIZED MILITIA

The Organized Militia at the close of the inspection season consisted of 9,130 officers and 111,672 enlisted men, a decrease of 12 officers and 1,038 enlisted men since 1912. The decrease was largely due to the mustering out of organizations found to fall irremediably below the standard. New York leads the states with 1,056 officers and 14,901 enlisted men; Pennsylvania is second with 768 officers and 9,766 enlisted men; Utah has the smallest force, having only 31 officers and 323 enlisted men. There are in all 41 general officers of the line, 1,782 officers and 5,493 enlisted men of the staff corps and departments, 299 officers and 4,156 enlisted men of the cavalry, 293 officers and 4,907 enlisted men of the field artillery, 479 officers and 7,267 enlisted men of the coast artillery and 6,237 officers and 89,894 enlisted men of the infantry. There have been 74 active officers of the regular Army and 20 retired officers on duty with the Organized Militia as inspector-instructors, besides 131 sergeants. While reports indicate commendable improvement in discipline, equipment, training and care of government property in the various units, the Organized Militia as a whole has made little progress, except in the state of New York, toward becoming a national guard in the true sense.

The great increase in range of small arms and field artillery and the extended lines of battle caused thereby have necessitated tactical organizations in which our militia is almost entirely lacking. An army improperly organized and only partly trained would have no chance when opposed to a well-balanced force. With a view to bringing into prominence the actual conditions, the General Staff has endeavored to form the militia into tactical divisions in the same manner as has been done for the regular Army in the United States. Using the infantry as a basis, the militia of the various states has been assigned to 12 divisions. The following table shows the shortage in these divisions in the field artillery, cavalry and auxiliary troops, without which successful field operations cannot be hoped for:

DEFICIENCIES IN THE ORGANIZED MILITIA

Division	Field Artillery (batteries)	Cavalry (troops)	Engineers (companies)	Signal Corps (companies)	Field Hospitals	Ambulance Companies
5th	6	3	3	.....	1	2
6th	.....	3	.....	.....	2	1
7th	10	4	1	1	4	4
8th	9	9	3	1	2	4
9th	10	6	3	2	3	3
10th	10	12	3	1	1	3
11th	7	6	.....	.....	1	.....
12th	6	3	2	.....	2	3
13th	8	11	3	2	3	4
14th	7	8	2	.....	2	3
15th	7	5	2	1	3	4
16th	7	7	3	.....	2	2

In addition to the above deficiencies there is no division which has transportation to form the ammunition, supply and pack trains without which an army cannot move.

Of the shortage, the regular Army could supply, without disturbing its tactical organization, seven batteries of field artillery, seven troops of cavalry, 10 companies of engineers and seven signal companies.

To make the situation more serious the organizations are generally below the minimum strength for effective training. Of 1,606 infantry companies inspected, 1,038 had less than one-third the enlisted strength called for by the Field Service Regulations; in the field artillery the strength as an average was about two-thirds the minimum prescribed, which minimum is about one-third the Field Service Regulation organization.

The reason for the condition is probably that the needs of the states have little relation to the needs of the nation as a whole. The infantry is the cheapest arm to maintain, and for use in riots, strikes and similar local disorders it serves the state purposes almost as well as cavalry and better than field artillery, two branches which are very expensive to maintain. Infantry unsupported by the proper proportion of cavalry and artillery, however, would be of practically no value as a field army; it could neither assume the offensive nor hold a defensive position. The War Department has therefore taken the position that it cannot recommend an extension of federal appropriations for the purpose of paying the troops of the Organized Militia until the militia can be accounted an asset in the national defense.

PENSIONS

In December, 1912, the Bureau of Pensions inaugurated a new system of pension payments. The 18 pension agencies scattered throughout the country were discontinued and the system of payment by check without vouchers or receipts from a central office was adopted. Pensioners were notified of the change when the last check was mailed them under the old method of payment, and the new system appears to have met with general approval.

The effect of the Pension Act approved May 11, 1912 (*A. Y. B.*, 1912, p. 360) has been to increase the annual amount paid out for pensions by something over $21,000,000, though the number of pensioners has decreased by 40,094. The number of pensioners reached the maximum in 1902 when there were 999,446 on the rolls. At that time the disbursement for pensions was $137,504,267.99 and the expense of the Bureau $3,831,378.96, a total cost of $141,335,646.95. In 1913 the pensioners numbered 820,200, the pension payments amounted to $174,171,600.80, and the expense of the Bureau was $2,543,246.59, a total cost of $176,714,907.39. The total disbursements of the Bureau since 1866 have been $4,586,966,346.09. Of the pensioners on the rolls at the last report, 503,633 were persons who rendered service in the Army or Navy (regular or volunteer), the remaining 316,567 being pensioned as widows or dependents.

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THE NAVY

Carlos Gilman Calkins

ADMINISTRATION

Navy Department.—Since March 4, 1913, Josephus Daniels has been Secretary of the Navy and Franklin D. Roosevelt Assistant Secretary. Numerous changes had taken place in the subordinate personnel of the Department. In October, 1913, Rear-Admiral B. A. Fiske was Aid for Operations; the Rear-Admiral H. T. Mayo, Aid for Personnel; Captain W. F. Fullam, Aid for Inspection; and Captain A. G. Winterhalter, Aid for Material. These officers were assigned by the Secretary; but the six chiefs of bureaus are appointed by the President for a fixed term of four years, with advancement to the rank of rear-admiral. The Bureau of Equipment remains without a chief; the heads of the other bureaus are as follows: Navigation, Commander Victor Blue; Engineering, Captain R. S. Griffin; Ordnance, Captain Joseph Strauss; Yards and Docks, Civil Engineer H. R. Stanford; Medicine and Surgery, Medical Director C. F. Stokes (Surgeon-General); Supplies and Accounts, Pay Director T. J. Cowie (Paymaster-General). The Admiral of the Navy still presides over the General Board, which advises the Secretary concerning the requirement of the fleet.

Appropriations.—The Naval Appropriation Act for 1913-14 authorized expenditures of $140,800,643, an apparent increase of nearly $17,000,000 over the previous year's appropriation. This increase was chiefly due, however, to the necessity of providing $35,325,695 to meet contracts for the increase of the Navy, only $20,569,323 having been appropriated in 1912. The pay of the Navy now requires $39,264,262; for ordnance and ammunition, $12,698,500 is allowed, and $11,724,192 for the armor and guns of new vessels; the repair of existing ships costs $8,665,000, and that of their engines $6,092,000, while $19,818,228 is allotted for the construction and machinery of new vessels. The Bureau of Supplies and Accounts is to expend during the year $9,588,441, of which 75 per cent. is required for provisions. Equipment costs $10,270,000, including $5,000,000 for coal and other fuel. Most of the $2,247,176 given to the Bureau of Navigation is to be spent in recruiting men for the Navy. Public works on shore cost $4,348,945. The Marine Corps is granted $7,558,234; and the Bureau of Medicine and Surgery $737,000. The Naval Academy costs $586,150, in addition to the pay of officers and midshipmen.

Estimates for 1915.—The total estimate for 1915 is $139,831,000, and provision for the construction of two battleships, eight destroyers, and three submarines is urged by the Secretary of the Navy, who, however, advocates an international agreement for the reduction of naval armaments, with the United States taking the initiative in negotiations to that effect. This proposal goes beyond the "naval holiday" suggested by the British Admiralty.

Personnel.—The new Secretary of the Navy has announced his policy in regard to various problems relating to the personnel of the Navy and Marine Corps. He declines to accept the resignation of commissioned officers, and promotion is denied to those who fall short of the required period of sea service, even when they are kept on shore by official orders. Educational advantages for enlisted men are to be increased, especially for those seeking to become commissioned officers. In examining candidates for commissions in the service, boards have given marks for "adaptability," or other vague qualifications; but these marks have been canceled by the Secretary for the benefit of those whose papers are otherwise satisfactory.

The fact that advanced rank is now denied to officers retired to maintain the flow of promotion reduced the number of applicants in 1913, and compelled the selection of a larger number for compulsory retirement; some of those affected have protested against their removal from the active list. The Committee on the Navy of the House of Representatives is considering various proposals for securing promotion by eliminating the unfit, it having been shown that such action is required to secure efficiency and prevent stagnation in the lower grades. Otherwise, neither captains nor admirals of suitable age for command can be obtained. The views of the Department are favorable to a scheme of "graduated retirement," under which retired pay will depend upon the length of service. The proposed amalgamation of paymasters and constructors with the line of the Navy has not yet been carried out.

The enlisted force of the Navy is still limited to 51,500; there are 25,000 commissioned officers in the service, and nearly 700 warrant officers. The Marine Corps has 347 officers and nearly 10,000 men, of whom 2,000 serve in the fleet.

Navy Yards.—Previous to March, 1913, the Navy Department had urged the reduction in a number of navy yards, of which only two of the first class were to be retained on the Atlantic coast. Secretary Daniels has not renewed these proposals. A board has reported on the advantages of the various sites now occupied, but without recommending the immediate abandonment of any of them. No action has been taken to secure a site for the consolidation of the northern group of navy yards on Narragansett Bay, as previously recommended, but a tract at Communipaw, N. J., has been inspected with a view to determine its fitness for an establishment to replace the New York Navy Yard.

The Naval Station at Guantanamo, Cuba, has not been extensively developed, though it serves as a *rendezvous* for the Atlantic Fleet. The ship-repair plant to be constructed at the Pacific end of the Panama Canal, with a drydock as large as the canal locks, may be considered as an additional yard for the Navy. Coaling stations with a stock of 400,000 tons, partly in subaqueous storage, and tanks and a pipe line across the Isthmus, will also provide resources for the fleet, as well as for traffic through the Canal. The naval station at Pearl Harbor, near Honolulu, receives a larger grant for public works than any of the older navy yards, but the new drydock cannot be completed without expense and delay because of unstable foundations. The Puget Sound Navy Yard is increasing its facilities; but the one at Mare Island is not developed on account of the shallow channels of approach.

The industrial organization of the navy yards has not been completed. Efficiency assistants are opposed by the labor union, and the eight-hour day and other restrictions tend to increase the cost of work done in navy yards, though private contractors on Navy work are now subject to the eight-hour limitation (see XVII, *Labor Legislation*). Combinations to prevent competition or make excessive profits are forbidden by the Naval Appropriation Act of 1913. Congress has directed that the battleship authorized by that bill shall be built in government yards, and other vessels authorized may be thus built if the Secretary so desires. The crews of men-of-war are not now allowed to work at repairs while ships lie at navy yards.

Naval Education.—The Naval Academy at Annapolis receives larger

classes of midshipmen year by year, the admissions in 1913 numbering over 300. Since 1912 graduates are commissioned as ensigns, but promotion will be obstructed before the present large classes reach the proper age for command. The commission of younger candidates, with 18 as the maximum age, is suggested; but it has been declared in Congress that the present examinations for admission are so difficult as to cause a rejection of young men who have passed with credit through the schools of their native states.

The post-graduate courses at the Naval Academy were extended during the year, and 18 officers were sent to Columbia University to complete courses in engineering begun at Annapolis. The Naval War College is to have larger classes than heretofore; many of its students are to take instructions for a longer period, and such preparation is to be considered when officers are examined for promotion. The Naval Medical School at Washington continues to prepare assistant surgeons for naval service by a special course of instruction.

The present Secretary of the Navy expresses great interest in the education of enlisted men; the schools in which they are instructed in ordnance, engineering, radio-telegraphy, and clerical duties are to be maintained, and vocational training is to be introduced in vessels of the fleet. Recruits are to be instructed in the common branches at the training stations before going to sea. Apparently these opportunities are specially intended for men seeking to qualify for commissions in the service, but it is anticipated that specialization will be of higher value to the service when applied to the larger number who are incapable of such advancement.

CONSTRUCTION AND ARMAMENT

Increase of the Navy—The plea of the General Board for a continuous naval policy and the prompt replacement of battleships rendered obsolete by the lapse of 20 years or more has not been accepted by Congress. President Taft's message urging the authorization of three battleships in 1912 was disregarded, and the Naval Appropriation Act approved on March 4 only repeated the programme of the previous year, authorizing only one battleship for 1914; six torpedo-boat destroyers were provided for in each year. Four submarines were authorized for 1914, with one transport and one supply ship. The United States Navy has fallen to the third place in relative rank among those of the Great Powers, and it seems improbable that its standing will be advanced by the present Congress. The service opinion lays particular stress upon the necessity of replacing obsolete vessels, and it declines to accept the view that our present fleet is doubled in strength by the completion of the Panama Canal, though it is conceded that the transfer of the fleet from the Atlantic to the Pacific will be shortened by 60 days by the opening of this route.

Battleships.—The *Arkansas* and *Wyoming*, armed with twelve 12-in. guns in six turrets, are the latest battleships now in commission, but their successors will have 14-in. guns in triple turrets. The pair authorized in 1910 is nearly completed; the *Texas*, built at Newport News, has already had preliminary trials in which the contract speed of 21 knots was readily attained; the *New York*, constructed at the New York Navy Yard, is not so far advanced, but both vessels should be commissioned early in 1914. The battleships of 1911, the *Nevada* and *Oklahoma*, to be completed by contract in 1915, have the same battery, ten 14-in. guns in four turrets, but the *Nevada* has Curtis turbines instead of the triple-expansion engines installed in the other three ships. All these vessels displace about 28,000 tons, but a decided advance is shown in the *Pennsylvania*, which is to mount twelve 14-in. guns in four turrets, with a displacement of 31,500 tons. The battleship authorized in 1913, No. 39, is to have the same dimensions and armament, but is to be built in a navy yard, while the *Pennsylvania* is now under construction at Newport News at a contract price slightly lower than the $7,425,000 fixed by Congress for the hull and machinery of each vessel. This amount may be

doubled in supplying armor, guns, and equipment for each battleship. The two latest battleships are to be propelled by turbines, and, like the *Nevada* and *Oklahoma*, they will burn oil only, their tanks holding 600,000,000 gal., the equivalent of 2,000 tons of coal. No increase of speed above the standard 21 knots is contemplated for any of these battleships.

The Navy Department now describes 19 battleships of the first line. Five of these are of the pre-Dreadnought type, with only four 12-in. guns; the rest have a main battery varying from eight 12-in. to twelve 14-in. guns. The second-line battleships also number 19, of which the oldest is the *Indiana*, built under a contract signed in 1890 and commissioned in 1895.

Cruisers.—No battle cruisers combining high speed and heavy armament have been authorized for the United States Navy, though ten armored cruisers, built between 1901 and 1907, still appear in the list. With a speed of 22 knots and a main battery of four 8- or 10-in. guns, these vessels do not represent a modern type. The same remark applies to all the other cruisers, including six of the first class, six of the second, and 15 of the third. The latter includes three scouts completed in 1908. Both in number and in speed, which does not exceed 25 knots, this group fails to provide the Navy with adequate force for scouting in time of war.

Destroyers and Submarines.—Flotilla armed chiefly with automobile torpedoes are still in demand, and Congress has given proportionally larger sums for such vessels than for armored ships of the Dreadnought type. Altogether, 56 destroyers and 47 submarines have been authorized for the Navy, besides 28 torpedo-boats now regarded as obsolete. For the six destroyers authorized in 1913, contracts have been made at prices varying from $825,000 to $884,000 each, the maximum price, exclusive of armament, having been fixed by Congress at $950,000.

The eight submarines authorized in 1912 varied in price from $535,000 to $615,000, the designs differing in many particulars. The sum of $2,478,936 was allotted for four submarines in 1913. Destroyers are now 300 ft. long and displace 1,052 tons. Turbines and boilers burning oil fuel only give them a speed of 29 knots, which is less than that of similar vessels in foreign navies. They carry a supply of oil equivalent to 309 tons of coal. The armament includes four 18-in. torpedo tubes, besides four 4-in. guns. Particulars of the submarines are not accessible, but the later craft are said to displace 565 tons, and to carry light guns in addition to their torpedo tubes. Their radius of action, either submerged or on the surface, is increasing with each new design.

Torpedoes to the value of $750,000 are to be purchased or manufactured within the year, many of them being procured abroad, especially those of the 21-in. type supplied the battleships for their four submerged tubes. These weapons have a longer range than the 18-in. torpedoes carried by the destroyers.

Auxiliaries.—Vessels of various types are required as auxiliaries to the fleet in increasing numbers. For the flotillas for torpedo attack and defense tenders are necessary. Obsolete cruisers have been employed on this service, but these are to be replaced by three specially constructed tenders for submarines and one for destroyers, all authorized since 1911. Of the 26 colliers and fuel ships now in service or under construction, half are large steamers of special design. Several of these are fitted with experimental machinery for propulsion. The *Jupiter*, displacing 19,360 tons, is driven by an electric generator at a speed of 14 knots, obtaining power from steam turbines. The *Neptune*, of like tonnage, employs reduction gear for transmitting power from the turbines to the propeller. The other large colliers have two triple-expansion engines. Over 10,000 tons of cargo coal can be shipped in these vessels and transferred to battleships at the rate of 900 tons per hour, each of the collier's 12 hatches having hoisting gear of its own. Some of them carry 3,000 tons of fuel oil in addition to a cargo of coal, but the two latest fuel ships, the *Kanawha* and *Mamee*, will carry oil only, with a cargo capacity of 7,554 tons of oil.

The Appropriation Act for 1914 authorized a naval transport to cost $1,850,000 and to carry 2,000 men, and a supply ship, to cost $1,425,000; these vessels are now under construction.

Guns and Armor.—The main battery of the latest American battleship is composed of ten or twelve 14-in. guns, mounted in the *Pennsylvania* and No. 39 in four three-gun turrets. The service test of these novel weapons and mounts is waited with some anxiety, but it appears that experiments on shore and in foreign battleships justify these innovations. Krupp guns of 14-in. calibre are 55 ft. long and weigh 62 tons. With a shell weighing 1,365 lb., they are said to have a muzzle energy of 73,722 ft.-tons and to be capable of penetrating 43 in. of steel armor. The American guns are to be only 45 calibres long, but they may be expected to penetrate the heaviest armor at battle ranges. Austrian and Italian battleships are said to find no difficulty in operating three-gun turrets at sea.

The new battleships of the American Navy will use the heaviest armor plates available for their protection; and the diminution in the number of turrets, from six in the *Arkansas* to four in the *Pennsylvania*, and of funnels, from two to one, will favor the concentration of armor at vital points. In neither type are the 21 or 22 five-in. anti-torpedo guns protected by armor. The necessity of any armor involves increased tonnage, and improved processes of hardening steel are eagerly studied by constructors. It is claimed abroad that the plates hardened by the Schaumann process are decidedly superior to the Krupp armor in general use.

Bids for supplying armor for the *Pennsylvania* have attracted public attention. The Secretary of the Navy rejected the first bids submitted as not really competitive and called for a second set. Of these the Midvale Steel Company's offer of Class A armor at $440 a ton and turret armor at $504 a ton was accepted, with a saving of $111,874 as compared with the original tender. Similar results were obtained in purchasing steel for battleship No. 39. For projectiles and large steel castings reduced prices were secured by making purchases abroad. The establishment of an armor factory by the Government is recommended as a means of preventing manufacturers from demanding extortionate prices for armor plates. It is also proposed by Secretary Daniels to have several navy yards equipped for the construction of men-of-war.

Improved torpedoes having a range of three miles before losing a speed of 30 knots have become a factor in engagements at modern ranges. Torpedoes of this type are manufactured at Newport, but orders have to be placed abroad to keep up supplies; 375 of the 21-in. type were ordered in England in 1913.

THE FLEET

Commands Afloat.—The Atlantic Fleet remained under the command of Rear-Admiral C. J. Badger throughout the year, and his successor has not been designated. Several changes have taken place among the four rear-admirals who command the divisions of this fleet of 25 battleships. Captain W. S. Sims commands the Atlantic Torpedo Flotilla, which includes 26 destroyers, 10 submarines, and two tenders. Numerous fleet auxiliaries are attached to the battleship squadrons.

The Atlantic Reserve Fleet, which includes most of the battleships of the second line as well as the monitors and cruisers of various types, remains under the command of Rear-Admiral W. B. Caperton. The Pacific Reserve Fleet is commanded by Rear-Admiral R. M. Doyle.

The Pacific Fleet, with Rear-Admiral W. C. Cowles in command, includes four armored cruisers, five destroyers, and four submarines. The Asiatic Fleet, still under the command of Rear-Admiral R. F. Nicholson, is made up of cruisers and gunboats of various types more or less fitted for the service in the Philippines and Chinese waters, and a small flotilla of destroyers and submarines is attached.

Operations.—The landing of seamen and marines for service in foreign countries has not been required in 1913, but vessels have been detailed to

WARSHIP TONNAGE OF THE PRINCIPAL NAVAL POWERS]

Number and Displacement of Warships, Built and Building, of 1,500 or More Tons, and of Torpedo Craft of More than 50 Tons.
(December 1, 1913.)

Type of Vessel	Great Britain				Germany				United States				France			
	Built		Building		Built		Building		Built		Building		Built		Building	
	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)
Battleships (Dreadnought type)	18	353,350	14	367,500	13	285,670	6	162,300	7	162,650	5	144,800	2	46,184	9	214,100
Battleships (Pre-dreadnought)	40	589,385	.....	.....	20	242,800	.....	.....	24	335,284	.....	.....	18	262,675	.....	.....
Coast-defense vessels	.....	.....	.....	.....	2	8,168	.....	.....	4	12,900	.....	.....	1	8,800	.....	.....
Battle cruisers	9	187,800	1	28,500	4	88,974	3	84,000	.....	.....	.....	.....	.....	.....	.....	.....
Armored cruisers	34	406,800	.....	.....	9	94,245	.....	.....	11	149,295	.....	.....	20	201,724	.....	.....
Cruisers	72	371,715	20	79,320	40	145,847	4	21,886	14	66,410	.....	.....	10	49,978	.....	.....
Torpedo boat destroyers	143	104,985	44	42,865	130	67,094	12	7,200	46	29,862	16	17,042	81	34,386	5	3,974
Torpedo boats	49	11,488	.....	.....	.....	.....	.....	.....	18	3,601	.....	.....	139	13,920	.....	.....
Submarines	72	27,188	22	20,395	24	10,540	12	9,484	25	.....	26	.....	75	28,224	18	12,190
Totals	.....	2,052,711	.....	538,580	.....	943,338	.....	284,870	.....	760,002	.....	161,842	.....	645,891	.....	230,264
Total tons built and building		2,591,291				1,228,208				921,844				876,155		

Type of Vessel	Japan				Russia				Italy				Austria			
	Built		Building		Built		Building		Built		Building		Built		Building	
	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)
Battleships (Dreadnought type)	2	41,600	4	120,000	.....	.....	7	159,305	2	40,940	7	172,760	2	40,020	2	40,020
Battleships (Pre-dreadnought)	13	191,380	.....	.....	8	112,050	.....	.....	8	96,100	.....	.....	6	74,613	.....	.....
Coast-defense vessels	2	9,086	.....	.....	2	10,380	.....	.....	.....	.....	.....	.....	6	41,700	.....	.....
Battle cruisers	1	27,500	3	82,500	.....	.....	4	128,000	.....	.....	.....	.....	.....	.....	.....	.....
Armored cruisers	13	138,483	.....	.....	6	63,500	.....	.....	9	74,020	.....	.....	2	13,380	.....	.....
Cruisers	14	60,995	.....	.....	9	52,845	8	45,000	7	20,030	3	6,223	5	13,815	2	6,966
Torpedo boat destroyers	54	22,356	2	1,200	93	36,145	45	54,810	28	10,987	19	13,730	15	7,089	3	2,361
Torpedo boats	28	3,127	.....	.....	14	2,132	.....	.....	68	11,584	2	240	36	6,048	27	6,642
Submarines	13	2,672	2	1,200	30	6,629	25	14,577	19	5,475	.....	.....	6	1,686	8	4,400
Totals	.....	497,199	.....	204,900	.....	283,681	.....	401,692	.....	259,136	.....	192,953	.....	198,351	.....	60,389
Total tons built and building		702,099				685,373				452,089				258,740		

ports of the Gulf of Mexico and the Pacific to protect American interests during the civil war in Mexico. The length of their stay has been the subject of diplomatic discussion, on the ground that a fixed period for the stay of foreign cruisers is named in the Mexican constitution. Commanding officers have not been warned to leave the ports, however, nor have they received instructions from Washington to heed any such warning. (See also III, *International Relations.*)

No naval review was held by the President in 1913, but the Secretary of the Navy and a delegation from Congress cruised in the ships of the Atlantic Fleet in order to witness battle practice at sea. On Oct. 25 nine battleships and five auxiliaries sailed from Hampton Roads for a six weeks' cruise in the Mediterranean, expecting to return to home ports on Dec. 15.

Battle Efficiency.—The combined figures of target and engineering practice give the relative standing of vessels after certain prescribed exercises have been carried out. Target practice includes the use of the whole armament, and engineering competitions take count of economy as well as speed steaming trials. For 1913 the pennant in the battleship class was awarded to the *Idaho*, Capt. W. L. Howard, 20 ships having competed. Of the 27 destroyers tested, the *Whipple*, Lieut. M. K. Metcalf, receives the highest mark. Only three submarines were able to conduct all forms of target practice and make all engineering runs, though 16 were given partial trials. Of these the pennant winner was the A-2, Ensign R. Bradford. The older battleships made a creditable showing in these competitions, and the results indicated a notable improvement over those of previous years.

COMPARISON WITH FOREIGN NAVIES

Estimates and Programmes. — The naval competition between Great Britain and Germany is continued. The latter country has a continued programme for the increase of the fleet, but it is charged that the completion of German ships is accelerated and the number of those in full commission is increased. This record has led to an increase in the British naval estimates, and new ships have been laid down on this account. The amended German plans will provide 41 battleships, 20 large cruisers, and 40 small cruisers by 1920, with large flotillas of destroyers and submarines. For the British Navy a superiority of 60 per cent. over the German tonnage is now officially accepted as the standard, the proposal to build two ships for every one laid down by Germany being regarded as extravagant. The First Lord of the Admiralty offered in 1913 to fix a "naval holiday" by agreement with Germany, the completion of ships being retarded to maintain the present relative force; but the proposal is not likely to have any practical effect. (See also IV, *Great Britain.*) France proposes to have 13 battleships by 1920, and Japan is building a fleet fit to meet a hostile force of 21 battleships. All programmes for construction are, however, liable to change, generally in the direction of an increased force.

Expenditures.—Unless the "naval holiday" proposed in England or some other arrangement for the reduction of armaments is generally adopted, a steady gain in expenditures may be expected. The United States, as shown in the following table, still stands between Germany and Great Britain in the schedule of naval expenditures, but spends less for new construction than either power:

NAVAL EXPENDITURES

Year	Great Britain	Germany	United States	Japan	France
1906	$167,525,238	$58,405,200	$104,508,719	$19,231,945	$60,025,405
1907	159,758,177	69,210,400	99,693,298	41,076,145	57,394,167
1908	160,074,573	80,229,800	129,972,971	40,312,533	58,941,096
1909	181,936,341	97,722,800	136,935,199	35,870,061	61,064,096
1910	206,541,168	103,302,773	131,404,640	37,542,184	74,102,439
1911	215,996,391	107,232,000	126,405,509	42,944,329	80,371,109
1912	228,430,064	110,715,043	123,151,539	46,158,216	81,692,832
1913	235,213,489	111,288,618	140,800,643	.....	89,028,626

PERSONNEL

(December 1, 1913)

Rank	England	Germany	United States	France	Japan
Admirals of the fleet	3	2	1	.....	3
Admirals	12	5	.....	.....	8
Vice admirals	22	11	.....	15	18
Rear admirals	56	22	25	30	38
Captains and commanders	683	356	207	360	259
Other line officers	2,414	1,881	1,549	1,457	1,915
Midshipmen at sea	563	398	0	60	145
Engineer officers	848	573	.....	505	771
Medical officers	593	322	314	394	373
Pay officers	685	267	231	219	362
Naval constructors	118	159	75	175	143
Chaplains	151	28	24	.....	.....
Warrant officers	2,693	2,686	867	13 9	1,553
Enlisted men	115,208	60,920	49,854	60,505	43,847
Marine officers	471	169	345	.....	.....
Enlisted men (marines)	21,033	5,597	9,921	.....	.....
Total	145,553	73,396	63,413	63,859	49,435

Strength of the Principal Navies.—All tables making comparison of naval strength must be used with caution, but the accompanying statistics, compiled by the Office of Naval Intelligence at Washington, furnish useful data.

Ordnance.—The tendency to increase the caliber length of guns of the main battery of battleships of the super-Dreadnought type and the battle cruisers is the most notable feature of naval progress. Great Britain has armed all capital ships designed since 1909 with 13.5-in. guns in twin turrets, three-gun turrets not being regarded with favor in the British service. The ships of the 1912 programme are to have eight 15-in. guns in four turrets. Japan, like the United States, has not gone beyond 14-in. caliber. Germany has clung to the lighter calibers, and none of the German battleships of which the design is published is to mount anything heavier than a 12-in. gun; it is reported, however, that a Krupp gun of 16-in. caliber, firing a projectile weighing a ton, will be supplied to some of the battleships of the German Navy now in process of construction.

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XIII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

S. S. Huebner

BUSINESS CONDITIONS IN 1913

A Year of Declining Business.—From the standpoint of general business conditions the year 1912, as described in the 1912 issue of the Year Book (p. 311), "was one of normal business with a tendency toward improvement and with business men optimistic as regards the future." The reverse only can be claimed for the year 1913, practically all the leading barometers of trade indicating a marked decline instead of the very noticeable improvement of 1912, and the general tone of the financial and trade journals being distinctly pessimistic in character. Much of the improvement in business during 1912 was traceable to the splendid agricultural crop of that year, which established records in nearly all the important cereals and which furnished a great stimulus, not only to the transportation interests of the nation, but also to the many industries which are directly or indirectly dependent for the volume of their business upon the bounty of the soil. In 1913, however, the yield of the five leading cereals showed a decline of 19 per cent. as compared with 1912. Similarly, the indicated yield of most other agricultural products was comparatively small, the potato crop showing a decline of 25 per cent. as compared with 1912, the hay crop a decline of 14 per cent., and the indicated condition of tobacco standing at only 61, as compared with a ten-year average of 83. These facts are briefly enumerated to show that the condition of the principal mainstay of the nation's business enterprises, the crops, was such as naturally to exert a retarding influence on business in general. In addition to this factor, however, 1913 was also a year of doubt and uncertainty, occasioned largely by numerous Federal and state investigations and the uncertain results of the new tariff law and other legislation.

The year represented a selling movement in which investors and speculators liquidated heavily. During the entire year business men marked time while awaiting developments and showed a disinclination to take the initiative in making purchases for the future or otherwise extending their business operations. The security market gave an exhibition of almost unprecedented dullness throughout the year. Sales of shares on the nation's leading exchange, the New York Stock Exchange, during the first nine months of the year showed a decline of nearly 30 per cent. as compared with the corresponding period of 1912, itself a comparatively dull year in this respect; while during the same period standard dividend-paying shares showed a decline on the average of 20 points. Bond sales on the New York Stock Exchange, comparing the first nine months of 1913 with those of 1912, likewise declined 30 per cent., and amounted to less than 60 per cent. of the sales in 1911, and only slightly over 37 per cent. of the sales in 1909. Meanwhile, during the first nine months of the year, the average price of representative bonds declined almost five per cent., or the equivalent of a whole year's interest return. New listings of securities on the New York Exchange also declined over 56 per cent. during the first nine months of the year as compared with 1912, and the showing is still worse if a comparison is made with the corresponding

CEREAL PRODUCTION
(000,000 omitted)

	1913, Estimated[1]	1912, Final	1911, Final	1910, Final	Previous Record
Winter wheat, bushels	510	400	431	434	493 (1906)
Spring wheat, bushels	243	330	191	201	330 (1912)
Corn, bushels	2,373	3,125	2,531	2,886	3,125 (1912)
Oats, bushels	1,122	1,418	922	1,186	1,418 (1912)
Barley, bushels	173	224	160	174	224 (1912)
Rye, bushels	35	36	33	35	36 (1912)
Total	4,456	5,533	4,268	4,916	5,626

[1] October estimate; the December estimate is given under XIX, *Agricultural Statistics*.

months of 1911, 1910 and 1909. In keeping with the aforementioned factors, new incorporations late in the year were taking place at only about one-third the rate of the corresponding period of 1912.

In the iron and steel business the leading plants were reported late in the year to be operating at only about four-fifths of their capacity, and the orders for unfilled tonnage of the U. S. Steel Corporation declined about 28 per cent. since the beginning of the year. In contrast to this situation, the 1912 output was constantly on the increase, and toward the close of that year the orders coming in were equal to the producing capacity of the plants. Building operations for the first nine months showed a decline of six per cent. compared with 1912. In fact, all the leading divisions of our business activity, as discussed in the following pages, showed a marked decline with the exception of our foreign trade and the copper industry. These two fields are notable exceptions, the first showing a tremendous increase, and the last having just about held its 1912 position; but as regards the copper situation, it should be noted, as will be explained later, that the heavy demand for the metal was largely due to the heavy export traffic.

Statistics.—In the tables on the following pages is presented a summary of business conditions for the first nine months of 1913 in contrast with those of 1912, as shown by those indices which are generally accepted as the truest barometers of industry and trade. The tables relating to stock market activity, including summaries of "Shares of Stocks and Bonds Sold," "Average Security Prices," and "New Securities Listed" indicate the activity or lack of activity during the year in the security market and the condition of the investment demand. The tables relating to "Loans and Deposits of the New York Clearing House Banks" and "Domestic and Foreign Money Rates" furnish an idea of the conditions surrounding the money market during 1913; while the tables on "Bank Clearings," "Foreign Trade," "Crop Production," "Idle Cars," "Production of Iron and Copper," "Building Construction," and "Business Failures" will serve to furnish a view of the year's activity in mercantile and manufacturing lines. For purposes of comparison, the data for these barometric indices are given by months for the years 1912 and 1913, and to make possible a further comparison, the totals for the several items, wherever possible, are also given for the years 1909, 1910 and 1911.[1]

AGRICULTURE

Crop Production. — The grain-crop statistics of the United States for the year 1913, as indicated by the report of the Department of Agriculture on Oct. 1, disclosed a highly unfavorable showing as compared with the large crop of 1912. In regard to the five leading cereals, the estimated yield for 1913, as indicated by the accompanying table, shows a total of only 4,456,000,000 bu., as compared with 5,533,000,000 bu. in 1912, a decrease of 1,077,000,000 bu., or over 19 per cent.

[1] The author is indebted for many of the statistics presented in the following tables to the monthly compilations prepared from authentic sources by R. W. Babson, and issued periodically in "Babson's Desk Sheet of Tables on Barometric Figures for Business Conditions."

, Corn, the nation's leading crop, suffered the largest decline, 752,000,000 bu., and represented a general average on Oct. 1 of 65.3, against 82.2 a year before, and a 10-year average of 80.6. On the basis of the October statement the average yield per acre for the whole country was estimated at 22.2 bu., or the lowest since 1901, while the total estimated yield is the lowest since 1903. Wheat, on the other hand, was the one important cereal which in a measure helped to overcome the shortage in the corn crop, the total yield of spring and winter wheat combined being estimated at 753,233,000 bu., or 5,000,000 bu. in excess of the previous largest crop (1901) and 23 million bu. in excess of 1912. This splendid showing was occasioned by the record yield of winter wheat, this crop amounting to 510,000,000 bu., or 110 millions in excess of 1912.

All the remaining important agricultural crops present a showing which, while not as bad as in the case of corn, is far from satisfactory. The oat yield was estimated at 1,122,000,000 bu., or 296,000,000 bu. below the yield of 1912; while in the case of barley the yield was 173,000,000 bu., as compared with 224,000,000 in the preceding year. The condition of other leading agricultural products is indicated by the following data: for potatoes the estimated yield was placed at 317,278,000 bu., as compared with 420,647,000 bu. in 1912; for hay, 63,000,000 tons, as compared with 73,000,000 tons in 1912; for tobacco, the October condition was given at 61, as contrasted with a 1912 average of 86 and a 10-year average of 83; for flaxseed, a yield of 21,000,000 bu., against 29,000,000 bu. in 1912.

Cotton Production.—With regard to cotton also, the showing was somewhat poorer than in 1912, the average condition of the crop on Sept. 25 having been placed by the Department of Agriculture at 64.1 of normal. On the basis of the Government's estimated acreage of 35,622,000 acres, the September expectancy of yield was 12,993,000 bales, as compared with 13,820,000 bales in 1912, or an amount which the leading authorities declare to be an insufficient supply to maintain the rate of consumption of the past two years.

Prices of Staple Agricultural Products.—The large decrease in the yield of practically all the leading agricultural products, except wheat and cotton, has had a material effect upon current market quotations. At the beginning of November, December corn was quoted at 70⅜ cents, compared with 52⅛ cents a year before, and a previous November high of 64.7 cents in 1911. New York December cotton was quoted at 13.58 cents, compared with 11.17 cents a year before, and a previous November high of 15.66 cents in 1909. In the case of wheat, however, where the crop proved a bountiful one, the Chicago December quotation was only 85⅞ cents, compared with 91¼ cents a year before, and a previous November high of $1.09⅞ in 1909. (See also XIX, *Agriculture.*)

IRON AND STEEL TRADE

Iron Production.—The improvement in iron production during 1912, as compared with 1911, continued during the first five months of 1913, the production for May reaching 2,822,000 tons, or more than in any month during the preceding two years. For the first nine months of 1913 the production totaled 23,896,000 tons, as against 21,274,000 tons for the corresponding months of 1912, a substantial increase. After May, however, the 1913 monthly production began to decline rapidly. The last three months of 1912, as indicated in the accompanying table, showed considerably higher totals than those given for the months of June to September of 1913, so that, assuming the expected further curtailment of production during the last three months of the year, the final record for 1913 will show only a moderate increase in pig iron production over the preceding year. In June the production fell to 2,628,000 tons, as compared with 2,822,000 tons in May, in July to 2,560,000 tons, and in September to 2,505,000 tons. This tendency toward lower pig-iron production is entirely in keeping with the declining tendency to be noted for 1913 in other lines of business which are regarded as barometers of trade. Moreover, at the close of October the price of pig iron No. 1X was quoted at $16.38, as compared with $18.50 a

year before and a previous November high of $19.25 in 1909.

The Steel Trade.—Toward the close of 1912 press accounts dealing with the steel business referred to the congested condition of the steel mills, and the orders of the unfilled tonnage of the U. S. Steel Corporation during that year showed an increase for each successive month, with but one exception.

The expected continuation of the improving tendency of the steel trade referred to in the last issue of the YEAR BOOK (p. 314), however, fell far short of realization. Instead, the financial press at the close of October, 1913, reported that the Steel Corporation was operating at about 80 per cent. of its capacity. Furthermore, the record of unfilled orders of the Steel Corporation showed a constant decline from the beginning of the year, each month showing a smaller volume of unfilled orders on the books of the Corporation than the preceding month. Thus, while at the close of December, 1912, the unfilled orders amounted to 7,932,164 tons, or the highest point of that year, there occurred a decline of about 28 per cent. during the first nine months of 1913, the unfilled orders at the close of September, 1913, standing at only 5,003,785 tons, a decline in nine months of 2,929,000 tons.

PRODUCTION OF IRON AND COPPER

	PIG IRON		COPPER			
	Production, Tons		Production, Pounds		Visible Supply	
	1912	1913	1912	1913	1912	1913
January	2,057,000	2,795,000	119,337,000	143,000,000	89,454,000	105,312,000
February	2,100,000	2,586,000	116,035,000	130,000,000	66,280,000	123,198,000
March	2,405,000	2,763,000	125,694,000	136,000,000	62,939,000	122,302,000
April	2,375,000	2,752,000	125,464,000	135,000,000	62,367,000	104,269,000
May	2,512,000	2,822,000	126,737,000	141,000,000	65,066,000	75,549,000
June	2,440,000	2,628,000	122,315,000	121,000,000	49,615,000	67,474,000
July	2,410,000	2,560,000	137,161,000	138,000,000	44,335,000	52,904,000
August	2,512,000	2,545,000	145,628,000	131,000,000	50,280,000	53,594,000
September	2,463,000	2,505,000	140,089,000	131,000,000	46,701,000	38,314,000
October	2,689,000	2,546,000	145,405,453	139,000,000	63,065,000	29,793,000
November	2,630,000	2,233,603	134,695,000	134,000,000	76,744,964	32,566,000
December	2,782,000	.....	143,000,000	139,000,000	86,164,000	47,929,000

COPPER TRADE

The production of copper for the first nine months of 1913 as reported in the "Copper Producers' Statement," totaled 1,206 million pounds, as compared with 1,155 million pounds in 1912 for the same period. Meanwhile, the visible supply of copper for the United States, which, as explained in the YEAR BOOK for 1912 (p. 315), declined from 155 million pounds in June, 1911, to 89 million in January, 1912, and 47 million pounds in September, 1912, decreased to the exceptionally low figure of 29,793,000 lb. by October, 1913. It should be stated, however, that from the low figure of 1912 the visible supply had increased to 122,302,000 lb. in March, 1913, and that since that time there has been a reduction of the visible supply by about three-fourths. Increased domestic consumption and large exports are responsible for this favorable showing, and in particular the exports, which, according to the *Journal of Commerce*, aggregated during the first nine months of 1913, exclusive of shipments to Canada which are included in domestic deliveries, "over 293 thousand tons, or the heaviest in the history of the industry." Despite the increased production and the reduction in the visible supply, the price of the metal has held fairly well, the quotation for electrolytic copper at the beginning of November standing at 16.38 cents, compared with 15.50 a year before and a previous November high of 19.25 cents in 1909.

Unlike the year 1912, however, the increased production and the fairly good price for the metal have not produced the favorable effect upon the value of copper shares that was

noted in the last issue of the YEAR BOOK. Whereas, the average price for 20 active and representative copper shares was 48.7 in October, 1912, this average declined to 36.9 at the beginning of November, 1913, as compared with 80 early in 1907, 28.6 late in 1907, and 60.8 in August 1909. It should be stated, however, that the security market, as is well understood, tends to discount the future, and the severe decline in copper shares, despite the favorable showing of the foregoing statistics of production and price of the metal, is to be attributed in large measure to the general depression of the entire range of stocks noted below.

FOREIGN TRADE

Although the foreign trade returns for the year ending June 30, 1912, showed an enormous increase over 1911 in both exports and imports (*A. Y. B.*, 1912, p. 315), the year ending June 30, 1913, showed imports and exports of even much greater proportions. In only two months of the twelve did our exports not exceed in value those of the corresponding months of 1911-12, and imports were also well above those of the preceding year except in the last four months. Imports and exports of merchandise combined aggregated for the fiscal year 1912-13 4,278 million dollars, or 421 millions in excess of 1911-12, and 702 millions in excess of 1910-11. Exports of merchandise totaled $2,465,761,910, or more than 261 millions over those of 1911-12, whereas those of 1911-12 were larger than those in 1910-11 by 155 millions, and the latter year in turn showed an increase of 270½ millions over the preceding year. Despite the general halt in other lines of business, it is apparent that the United States is rapidly extending its efforts toward the acquisition of foreign markets for its products. This becomes apparent when it is recalled that since 1899-1900 our exports have nearly doubled and our imports considerably more than doubled. Imports of merchandise for 1912-13 amounted to $1,812,621,160, or 159 millions over those of 1911-12. For the year the balance of merchandise exports over imports amounted to $653,140,750, as compared with $551,057,475 in the preceding year. (See also XXII, *External Commerce of the United States.*)

Of the many instructive features revealed by a detailed examination of the Government's foreign trade returns for 1912-13 the following may be briefly noted:

1. As in the preceding year the increase in the aggregate value of exports was not to any great extent due to higher prices. Although the export value of cotton was considerably higher than in 1911-12, the prices of other leading items, such as breadstuffs, fruits, hops, leather and manufactures of, wood and manufactures of, and various items among iron and steel manufactures, were lower.

2. Exports showed a marked expansion in almost all classes of articles, with the notable exception of cotton, which shows a decrease because of the smaller available supply owing to the decline in American production of some two million bales from the preceding year's crop. Iron and steel manufactures show a very large increase of approximately 50 million dollars on top of a 37½ million dollar gain in the year 1911-12. Shipments of breadstuffs amounted to 210 millions, as compared with 124 millions in the preceding year, although the values per unit did not in any case greatly exceed those of the year previous.

3. Comparatively few import items showed notable declines. On the other hand, conspicuous gains over 1911-12 occurred in art works, diamonds and precious stones, flax and other fibers and manufactures thereof, copper and manufactures of, silk and manufactures of chemicals, hides and leather, and vegetable oils.

4. The marked increase of our trade with Canada was an important feature. Exports to that country amounted to approximately 415 millions in 1912-13, as compared with 329 millions in 1911-12, and imports to 120 millions, as compared with 108 millions the previous year. It is noteworthy that between 1902-03 and 1912-13 our exports to Canada have increased from 123 millions to 415 millions.

FOREIGN TRADE

	Imports		Exports		Balance of Trade[1]	
	1912	1913	1912	1913	1912	1913
Jan....	$143,586,408	$163,063,438	$202,446,273	$227,032,930	+$58,859,865	+$63,969,492
Feb....	134,188,438	149,913,918	198,844,326	193,996,942	+ 64,655,888	+ 44,083,024
March.	157,577,038	155,445,498	205,411,462	187,426,711	+ 47,834,424	+ 31,981,213
April...	162,571,159	146,194,461	179,300,342	199,813,438	+ 16,729,183	+ 53,618,977
May...	155,697,886	133,723,713	175,380,058	194,607,422	+ 19,682,172	+ 60,883,709
June...	131,030,797	131,245,877	138,233,742	163,404,916	+ 7,202,945	+ 32,159,039
July....	148,677,738	139,284,570	149,021,133	160,990,778	+ 343,395	+ 21,706,208
Aug....	154,933,770	137,704,195	167,844,871	187,812,636	+ 12,911,101	+ 50,108,441
Sept....	144,862,343	169,562,757	199,701,652	218,185,451	+ 54,839,309	+ 48,622,694
Oct....	177,995,830	132,878,896	254,696,985	271,855,054	+ 76,791,155	+138,976,158
Nov....	153,134,995	148,594,741	277,898,681	245,645,896	+124,763,686	+ 97,050,155
Dec....	154,095,444	.....	250,315,807	.....	+ 96,267,363	.....
Totals..	$1,818,073,055	.....	$2,399,217,993	.....	$581,191,938	.....

[1] + = balance of exports.

BUILDING OPERATIONS

Building operations for the first nine months of 1913 were less than during the corresponding period of 1912 by about $45,000,000. The September, 1913, returns of the *Commercial and Financial Chronicle* for 144 leading cities furnish the most comprehensive summary of activity along this line. In its summary for the month of September and the first nine months of the current year, the following conclusions are presented:

We have pointed out that the month's total exceeds that of last year moderately; the total for the year to date is quite a little less than then and even below 1911. For the nine months of 1913 the prospective outlay at the 144 cities reaches, according to our compilation, slightly over 705 million dollars, as against 750 millions in 1912 and 718 millions in 1911. Greater New York's figures are 126½ millions, 176¼ millions and 152¾ millions, respectively, in the three years, but the figures for the other cities collectively are a record for the period, 583½ millions, contrasted with 573¾ millions and 565 millions. Twenty-five New England cities show an aggregate loss of 9¼ million dollars from 1912, which is more than accounted for in Boston and vicinity. The "Other Western" division, embracing the country west of the Mississippi River excent Arkansas, Texas, Oklahoma, and the states on the Pacific Coast, also makes a less favorabl exhibit, the loss at 23 cities reaching four millions. On the other hand, the 31 municipalities (not including New York) that make up the middle section show 6¼ million dollars increase, the Middle West (27 cities) 10¾ millions, the Pacific Coast (13 cities) 6 millions, and the South (25 cities) a nominal gain.

BUILDING CONSTRUCTION
(20 Leading Cities)

	1912	1913
January	$27,623,326	$31,403,534
February	31,303,094	33,488,702
March	49,666,896	46,702,029
April	65,012,412	54,746,603
May	59,434,953	50,641,821
June	57,545,437	48,978,095
July	48,261,154	44,408,338
August	52,038,639	39,259,602
September	36,827,818	39,073,309
October	41,131,514	35,350,380
November	38,542,414	.....
December	46,822,122	.....

BUSINESS FAILURES

In the Year Book for 1912 (p. 316) it was explained that the commercial failures during the first nine months of 1912 compared unfavorably with those of the year 1911; it must be stated that 1913 during the same period compared unfavorably with the showing of 1912. As against the 11,816 failures for the first nine months of 1912, reported by R. G. Dun & Co., the number of failures for the same period in 1913 reached 11,712, but the liabilities amounted to $196,746,376, as compared with $153,544,360 the previous year. The showing is particularly bad for the later months of the period, R. G. Dun & Co. reporting failures in September to the number of 1,235, with liabilities of $22,662,694, against 1,167, with liabilities of only $13,280,511 in September, 1912, and only 827 for $11,-

900,568 in September, 1911. Manufacturers' accounts represent $13,320,101 of the 1913 September total, as compared with only $7,152,623 in 1912. A comparison between 1913 and 1912 and earlier years as regards the third quarter of the year, as well as for the first nine months, is thus presented by the *Commercial and Financial Chronicle* in the issue of Oct. 11, 1913:

The showing for the third quarter of the current year (July-September, inclusive) is much the poorest since 1896, and the total of liabilities for the nine months exceeds that of any year since 1893. It is true, of course, that last year and also in 1908 the number of failures for the nine months was larger than now, but in each instance the volume of indebtedness was of noticeably lesser magnitude. Defaults for the period this year numbered 11,712, against 11,816 in 1912 and 9,944 in 1911, and the amount involved was $196,746,376, against $153,544,360 and $138,865,620 respectively. Manufacturing liabilities for the nine months aggregated no less than $88,058,194, against $65,693,312 in 1912. In this division most of the branches into which the failures are segregated exhibit increases in indebtedness over a year ago. Trading debts at $83,806,688 record an increase of 14 million dollars over last year. The failed indebtedness of brokers, etc., at $24,881,494 contrasts with $18,204,061 a year ago. Analyzing the results for the various sections of the country for the nine months, we find that the central eastern section, comprising the states of Ohio, Indiana, Illinois, Michigan and Wisconsin, makes the least satisfactory showing as compared with 1912, although all the various groups except the western (Montana, Idaho, etc.) report increases in amount of liabilities. Bank suspensions during the elapsed portion of 1913 were greater in number than in the like period of last year (85 comparing with 63), but represented a much smaller total of liabilities, only $8,899,613, against $20,905,254. In 1911 the figures were, respectively, 80 and $18,964,237.

BUSINESS FAILURES

	Liabilities		Number	
	1912	1913	1912	1913
January	$19,853,501	$19,295,981	1,799	1,690
February	18,253,558	28,971,714	1,373	1,284
March	19,827,060	22,564,866	1,245	1,213
April	15,974,064	19,424,939	1,179	1,231
May	14,076,671	15,726,696	1,157	1,175
June	15,815,971	17,392,469	1,013	1,060
July	16,315,232	37,789,725	1,153	1,117
August	15,532,530	21,935,467	1,061	1,117
September	19,454,176	19,343,267	1,083	1,172
October	15,762,337	20,652,776	1,150	1,344
November	15,646,105	24,199,485	1,175	1,377
December	17,903,506	.....	1,321	.....
Total—				
1907	$197,395,225		11,725	
1908	222,315,684		15,690	
1909	154,603,465		12,924	
1910	201,757,097		12,652	
1911	191,061,665		13,441	
1912	202,086,624		14,647	

RAILROAD EARNINGS

Volume of Traffic.—In the last issue of the Year Book (p. 317) it was stated that, "as was the case in 1911, the point of greatest difficulty with the railway companies of the country during 1912 was the high cost of operation, rather than decrease in the business handled, or in gross income received." This conclusion applies absolutely to the railroad situation of the country for the year 1913, because gross earnings of 463 American railroads, as compiled by the *Commercial and Financial Chronicle*, and representing nearly the total mileage of the country, increased by the enormous sum of $136,168,743 during the first six months of the year as compared with the same period in 1912, or 9.97 per cent.; while the net earnings, owing to a tremendous increase in expenses, rose only $26,799,669. All indications pointed to a remarkably large volume of traffic for

the year, especially in view of the very heavy western grain movement during the first half of the year as a result of the record grain crop of 1912. Despite the large increase in new cars, the freight car surplus, as shown by the following table, never exceeded 70,000, while in October an actual shortage, although of small dimensions, was reported.

IDLE CAR FIGURES
(Fortnightly Reports of Net Surplus)

1911		1912		1913	
Jan. 4	106,924	Jan. 3	135,938	Jan. 15	28,439
" 18	119,820	" 17	90,285	Feb. 1	37,260
Feb. 1	155,068	" 31	32,581	" 15	22,183
" 15	173,667	Feb. 14	13,958	Mar. 1	31,381
Mar. 1	189,842	" 28	7,842	" 15	37,775
" 15	207,261	Mar. 13	3,043	April 1	57,988
" 29	194,887	" 27	18,708	" 15	57,498
April 12	186,053	April 11	79,389	May 1	39,799
" 26	187,006	" 25	138,881	" 15	50,294
May 10	187,278	May 9	130,098	" 31	50,908
" 24	167,398	" 23	116,201	June 14	63,927
June 7	166,970	June 6	86,386	" 30	63,704
" 21	163,170	" 20	67,718	July 15	69,405
July 5	163,621	July 4	64,024	Aug. 1	58,455
" 19	149,072	" 18	68,922	" 15	54,425
Aug. 2	128,091	Aug. 1	56,510	" 30	58,306
" 16	104,170	" 15	43,901	Sept. 15	40,159
" 30	84,541	" 29	9,750	Oct. 1	10,374
Sept. 13	64,283	Sept. 12	*n* 8,620	" 15	*n* 6,048
" 27	50,038	" 26	*n*17,793	Nov. 1	*n* 1,842
Oct. 11	35,897	Oct. 10	*n*31,579	" 15	22,652
" 25	20,532	" 24	*n*49,981	Dec. 1	57,254
Nov. 8	26,514	Nov. 7	*n*51,259	" 15	101,545
" 22	23,110	" 30	*n*36,401		
Dec. 6	36,143	Dec. 14	*n*34,392		
" 20	76,814	" 31	17,058		

n = net shortage.

Comparison of Gross and Net Earnings.—According to the *Commercial and Financial Chronicle's* very full compilation of gross and net earnings of the 463 aforementioned railroads for the first six months of 1913, it appears that gross earnings amounted to $1,502,472,942, or, as already stated, over $136,000,000 in excess of the corresponding period for 1912; while the 1912 figures, for the first six months of the year, exceeded the 1911 figures by only $56,349,506. Net earnings, on the other hand, amounted to $400,242,544, but the increase over 1912 was only $26,799,669. This small balance of net earnings out of the large increase in gross earnings is attributable to the heavy operating expenses, which, for the six months, amounted to $1,102,230,398, as compared with $992,861,324 for the same months of 1912. In other words, while gross earnings increased by 9.97 per cent., operating expenses rose by 11.02 per cent., thus leaving an increase of only 7.18 per cent. in net earnings. Briefly stated, the higher operating expenses of the railroads are traceable to the high cost of materials and wages, the necessary compliance of the railroads with new legislative requirements, and the refusal of the Government thus far, although new attempts are being made by the railroads in this connection, to permit any increase in freight rates. (See also XXII, *Railroads.*)

The unfavorable showing in railroad net earnings in 1912 was in a large measure due to a number of unfavorable circumstances which were local in character (*A. Y. B.*, 1912, p. 317). With the elimination of these factors, one might have expected a very considerable improvement in net earnings for the first half of 1913, in so far that there should have been a recovery in what was unavoidably lost in the preceding year. As a matter of fact, the increase of approximately $27,000,000 even conveys too

BANK CLEARINGS

	Bank Clearings Outside of New York		Total Bank Clearings	
	1912	1913	1912	1913
January	$6,339,569,000	$6,877,371,000	$15,175,151,000	$16,216,112,000
February	5,655,969,000	5,797,459,000	12,968,617,000	13,592,103,000
March	6,103,224,000	6,220,308,000	14,520,179,000	14,106,494,000
April	6,213,715,000	6,216,506,000	15,043,870,000	14,271,837,000
May	6,104,005,000	6,133,432,000	14,883,285,000	14,095,951,000
June	5,729,871,000	5,939,873,000	13,690,863,000	13,693,384,000
July	6,094,527,000	6,191,655,000	14,015,610,000	13,536,575,000
August	5,798,413,000	5,611,944,000	13,284,697,000	12,374,139,000
September	5,731,313,000	5,967,114,000	13,164,149,000	13,423,032,000
October	7,110,401,000	7,002,353,000	17,249,398,000	15,695,747,000
November	6,639,033,000	6,280,855,000	15,458,870,000	13,867,739,000
December	6,646,417,000	6,677,997,621	15,455,139,000	14,677,996,173
Total	$75,351,741,000	$74,917,544,819	$174,334,788,000	$169,551,826,803

favorable an impression of the situation, considering certain facts. In the first place, several important groups of roads enjoyed handsome net gains in the first six months of 1913 because of favorable conditions which did not prevail in 1912. The anthracite carriers, for example, suffered heavy losses in net earnings during 1912, owing to the suspension of mining during the whole of April and the greater part of May, while mining operations in the anthracite fields were carried on uninterruptedly during the first half of 1913. Thus, the Lehigh Valley during the first six months of 1913 showed a gain of $586,388 in net out of an increase of $3,424,756 in gross; the Philadelphia & Reading, $1,946,997 net out of $2,941,389 gross; the Erie, $2,266,932 net out of $3,314,576 gross; the Lackawanna, $1,816,726 net out of $2,953,535 gross; the Delaware & Hudson, $924,129 net out of $1,582,460 gross; and the Central of New Jersey, $583,492 net out of $1,038,378 gross. These six anthracite carriers, therefore, enjoyed over $8,000,000 of the $27,000,000 gained in net earnings of all American railroads. In the absence of strike conditions, and floods in the Mississippi Valley, which constituted severe drawbacks in 1912, the Illinois Central also was able to report a $2,092,032 improvement in net earnings out of an increase of $2,622,732 in gross. Moreover, American railroads had to contend with a very mild winter in 1913, as contrasted with the very severe weather of the previous year. In fact, American railroads had only one severe drawback to contend with during the year, the heavy floods in the middle and middle western states during the latter part of March. If we eliminate from consideration the various railroads which showed large gains in the net earnings because of the absence of abnormally unfavorable conditions which existed in 1912, we find that for the remaining roads the showing in the increase of net income, despite the large augmentation of gross income, is a highly unsatisfactory one.

BANK CLEARINGS

For the year 1913 bank clearings show a small decrease over those for the year 1912. The *Commercial and Financial Chronicle's* compilation of clearings for all the leading cities of the United States indicates that only 23 cities out of the 111 for which data are collected, failed to show any improvement in this respect during the first nine months, but the losses, as well as the gains, were small in nearly every instance. According to the *Chronicle's* figures, the total clearings for the United States, as regards the first nine months of the year, stood at $125,309,630,092, as compared with $126,079,347,506 for the corresponding period of 1912, or a decrease of only 0.6 per cent. Outside of New York, however, the clearings increased from $53,102,937,304 during the first nine months of 1912 to $54,955,666,854 for the corresponding months of 1913, or an increase

SECURITY MARKET TRANSACTIONS AND PRICES
(New York Stock Exchange)

	Total Transactions				Average Security Prices			
	Shares of Stock		Bond Sales		10 Leading Stocks		10 Leading Bonds	
	1912	1913	1912	1913	1912	1913	1912	1913
January	10,906,138	8,748,973	$113,834,000	$54,903,500	159.7	159.8	97.9	96.0
February	7,086,554	6,763,632	51,828,000	47,707,000	162.2	156.4	98.5	96.0
March	14,552,052	7,229,732	69,951,500	40,434,500	164.0	153.3	98.2	95.5
April	15,959,338	8,463,226	63,437,500	55,573,500	166.0	151.7	97.9	94.3
May	13,662,747	5,463,561	60,965,500	42,178,500	165.9	145.5	97.6	93.5
June	7,219,721	9,588,174	45,731,500	42,958,200	165.2	140.1	97.3	92.5
July	7,158,324	5,124,015	51,910,500	34,986,200	165.8	141.4	97.4	91.4
August	8,952,358	6,086,374	43,530,500	29,489,000	168.1	141.8	96.7	91.3
September	10,107,204	7,682,304	45,364,000	34,931,120	167.6	143.0	96.0	92.0
October	14,166,896	7,403,029	46,327,300	41,118,500	168.1	140.7	96.2	92.5
November	8,725,317	3,765,595	38,114,200	32,668,000	165.4	138.2	96.4	91.8
December	12,631,786	7,152,078	44,219,000	45,584,000	160.8	.....	95.3	.....
Total, 1908.	197,206,346							
1909.	214,632,194							
1910.	164,150,061							
1911.	127,207,258							
1912.	131,128,425							
1913.	83,470,693							

of 3.5 per cent. The slight decrease in the total clearings of 1913, as compared with 1912, has taken place, therefore, in New York, and the showing in all probability is traceable to the very small volume of transactions in the New York security market. In view of the natural development of the country, however, one would expect a substantial increase in bank clearings to occur from year to year, and from this point of view the showing for 1913 cannot be regarded as indicative of an increase in the general business of the country.

THE SECURITY MARKET

Stock Transactions.—As indicated by the volume of transactions, extreme dullness prevailed in the stock market during practically all of the year 1913, the transactions falling considerably short of even the poor years, 1910 to 1912, inclusive. Sales on the New York Stock Exchange during the first nine months amounted to only 65,149,991 shares, as compared with sales for the corresponding nine months of 1911 and 1912 of 92,294,988 and 95,604,426 shares, respectively, and compares very badly with the corresponding totals of 136 million shares in 1910, 222½ million in 1906, and 216 million in 1901. Monthly transactions for 1913 were uniformly small, the total exceeding nine million shares only once, in June, when the lowest prices of the year were reached and when liquidation proved heaviest; while for May and July the transactions failed to reach even the 5½ million mark. This great dullness in the security market also reflected itself in the very low price paid for stock exchange seats, one transfer being made at the remarkably low figure of $40,000, as compared with $96,000 in 1906.

Stock Prices.—The extreme dullness of the stock market was accompanied by a general and gradual downward tendency of prices. This decline reached such proportions that in numerous instances standard dividend-paying stocks, especially in the case of leading railroads, were selling at prices not far above those which prevailed in the panic year of 1907, while in nearly all cases prices were much below those of 1912. An examination of the accompanying list of representative railroad and industrial stocks, usually regarded as market leaders, showing the high and low prices for 1912 and 1913, will show that in nearly all cases the highest quotations of the two years were reached in 1912, and that in nearly all cases there has

RANGE OF STOCK PRICES DURING 1912 AND 1913
(New York Stock Exchange Quotations)

Stocks	1912		1913		
	High	Low	High	Low	Oct. 24
Amalgamated Copper	92⅜	60	80½	61⅝	74¼
American Car & Foundry	63⅝	49	56⅜	36½	44
American Cotton Oil	60¼	45½	57⅜	33⅞	39⅞
American Locomotive	47½	31½	44½	27	31½
American Smelting & Refining	91	66½	74¾	58½	63½
American Sugar	113½	113½	118	99⅞	110
American Telephone & Telegraph	149⅛	137⅝	140	110	122¼
Atlantic Coast Line	148½	*x*130¾	133⅜	112	114⅜
Baltimore & Ohio	111⅞	101⅞	106⅜	90⅝	93¼
Brooklyn Rapid Transit	94½	76¾	92¾	*x*83¾	87¼
Canadian Pacific	283	226½	266¾	204	228⅜
Chesapeake & Ohio	85½	68½	80	51½	57½
Chicago, Milwaukee & St. Paul	117⅝	99⅜	116½	96¾	101¾
Chicago & Northwest	145	134½	138	123	127
Erie	39⅜	30	32½	20½	27⅛
Great Northern, pfd	143⅜	126	132⅝	115½	123⅛
Illinois Central	141⅞	120⅝	128⅞	102⅜	106¼
Lehigh Valley R. R	185⅜	155⅞	168⅜	141¼	151⅛
Missouri Pacific	47¼	35	43⅝	21½	29¼
New York Central	121½	106½	109¾	90⅜	96½
Northern Pacific	131⅝	115⅜	122⅝	101⅜	107¼
Pennsylvania R. R	126½	119⅞	123¾	106	109½
Reading	179½	148½	171⅞	151⅜	162⅝
Rock Island	30¼	22⅜	24⅞	11⅝	14¾
Southern Pacific	115⅜	103½	110	83	87⅛
Southern Ry	32	26¼	28⅝	19⅛	22½
Union Pacific	176⅜	150¾	162¾	137⅜	152⅛
United States Steel	80¼	58¼	69⅞	49⅞	58

x = ex-dividend.

been a severe decline in 1913 from the lowest prices quoted in the preceding year. This decline reached its lowest point in June, 1913, but in November the market was but little higher than at that time, and, in fact, at no time did the year show any marked and sustained effort at recovery. In the last issue of the YEAR BOOK (p. 319), the average price of ten representative stocks was shown to have increased from $159.7 in January, 1912, to $164 in March and $168.1 in August and October. By January, 1913, however, this average price had declined to $159.8, and thereafter the decline continued, with scarcely an upturn of any importance, until in October the price stood at only $139.8. Roger W. Babson's "Weekly Barometer Letter" gave the average price of 20 representative railroad stocks at 104.43 in the closing week of October, as compared with 135 in January, 1906, 84 in November, 1907, and 131.5 in August, 1909. As regards 12 representative industrials, he placed the average price at 78.60 for the same week, compared with 98.7 in January, 1906, 55.7 in November, 1907, and 97.7 in August, 1909.

Bond Sales.—Even greater dullness prevailed in the bond market during the first nine months of 1913 than existed in the stock market. Bond operations on the New York Stock Exchange for these months aggregated only $383,000,000 par value, against 546½ millions for the corresponding period in 1912, 639 millions in 1911, and 1,026 millions in the record year 1909. While the aggregate New York Stock Exchange bond sales in January, 1912, amounted to over $113,000,000, and frequently during that year exceeded 60 millions per month, not a single month within the first nine months of 1913 showed transactions of 56 millions. In only three months did the total exceed $47,000,000, and in two months, July and September, the total was less than $35.000,000, the September operations falling below those of the corresponding month of any year since 1900.

As was the case with stocks, the extreme dullness in the bond market was accompanied by a steady decline in prices. During 1912 the average price of 10 leading and representative bonds, as pointed out in the last issue

INCORPORATIONS OF $1,000,000 AND OVER

	1913	1912	1911	1910
January	$332,450,000	$210,520,000	$356,719,000	$187,180,000
February	191,500,000	101,300,000	172,400,000	169,468,000
March	166,030,000	161,078,000	139,910,000	362,659,600
April	198,718,000	281,457,000	58,690,000	254,085,000
May	173,200,000	145,284,000	163,195,000	139,980,400
June	79,550,000	280,250,000	152,550,000	231,319,400
July	84,100,000	253,518,000	195,850,000	112,020,000
August	63,500,000	164,500,000	87,350,000	107,500,000
September	43,750,000	145,050,000	77,004,000	58,100,000
October	70,856,300	169,495,000	124,220,000	93,695,000
November	77,800,000	154,200,000	150,593,400	119,023,000
December	55,250,000	200,100,000	159,450,000	132,587,050
Total	$1,534,254,300	$2,295,172,000	$1,837,143,400	$1,967,617,450

of the YEAR BOOK (p. 321), fluctuated but little, the range being between 96.2 in September and 98.5 in February. In 1913, however, this average price, already very low, declined almost continuously from 96 in January to 91.3 in August; while for the month of October the average still stood at the very low level of 91.7. According to Mr. Babson's weekly compilation, the average price of investment bonds in the last week of October stood at 91.6, compared with 107 in March, 1905, 88 in November, 1907, and 102.6 in February, 1909. Owing to the present low level the yield of these investment bonds stands at 4.79 per cent., as compared with 3.96 per cent. in March, 1905, and 4.11 per cent. in February, 1909.

The declining and very unsatisfactory share and bond investment market is partly traceable to the factors outlined in the last issue of the YEAR BOOK, *viz.*, influence of high prices of materials and wages on the net returns of corporations, and the amount of capital available for investment purposes. In all probability, however, much importance has been attached to the very poor crop returns for the year, the demands upon capital through the waste of war, and the general feeling of unrest incident to the momentous legislative programmes of Congress and of various state legislatures, especially as regards the revision of the tariff, the adoption of laws vitally affecting the earnings of the railroads, and the long struggle over the revision of the banking and currency laws.

New Securities Listed.—Unlike the year 1912, the year 1913 showed a very small volume of new security listings on the New York Stock Exchange, a fact which should be considered in conjunction with the enormous decline in security prices. The statistics for the first nine months of the year show a total for 1913 of only $634,126,315 par value, as compared with 1,439 millions for the corresponding period of 1912, or less than one-half. The showing appears abnormally small when compared with the listings for 12 months of 1,786 million dollars in 1912, 1,329 millions in 1911, 1,678 millions in 1910, and 2,439 millions in 1909. For only one month did the listings of new securities exceed 200 millions, while for the months of August and September the total listings fell to 38 millions and 27½ millions, respectively.

LISTINGS OF NEW SECURITIES

	1912	1913
January	[1]$296,135,560	$50,929,050
February	110,963,200	60,812,000
March	63,196,000	43,250,000
April	212,443,400	21,806,715
May	113,452,900	131,520,450
June	433,629,800	59,001,000
July	17,538,000	200,065,000
August	142,063,600	38,085,000
September	47,735,000	27,657,100
October	99,004,250	102,182,000
November	101,728,500	.....
December	159,488,300	.....
Total, 1908	$1,415,448,150	
1909	2,439,656,870	
1910	1,678,147,570	
1911	1,329,616,345	
1912	[1]1,786,986,170	

[1] $228,163,550 represents listings incident to dissolution of American Tobacco Co.

MONEY MARKET CONDITIONS

	Loans, Deposits and Reserves of New York Clearing House Banks					
	Loans (000 omitted)		Deposits (000 omitted)		Surplus Reserves (000 omitted)	
	1912	1913	1912	1913	1912	1913
January	$1,373,429	$1,337,945	$1,420,820	$1,349,170	$31,236,875	$17,193,000
Feoruary	1,418,783	1,376,314	1,486,025	1,398,254	36,676,438	11,170,000
March	1,425,305	1,334,656	1,463,531	1,327,048	15,169,500	9,267,500
April	1,398,612	1,332,865	1,410,717	1,328,749	10,388,813	14,185,313
May	1,380,275	1,329,433	1,415,516	1,329,680	16,696,875	20,931,100
June	1,393,226	1,321,599	1,446,836	1,338,123	25,412,850	35,428,313
July	1,399,425	1,363,637	1,430,984	1,376,329	8,126,188	22,245,313
August	1,391,764	1,362,552	1,427,907	1,373,416	17,140,850	22,859,250
September	1,357,230	1,370,607	1,359,297	1,362,525	4,071,688	7,196,625
October	1,334,358	1,331,129	1,138,662	1,314,843	5,548,125	12,111,250
November	1,313,756	.....	1,297,243	.....	5,635,900	.....
December	1,281,405	.....	1,252,197	.....	4,276,938	.....

	Money Rates						Gold Movements	
	New York Monthly Average				Average Bank Rates, England, France and Germany			
	1911		1912					
	Call	Time	Call	Time	1912	1913	1912	1913
January	2½	4	3	5	4½	5	—$3,250,341	+11,027,288
February	2½	2¾	3½	5	4	5	— 7,652,021	+ 7,016,938
March	2¾	4½	4½	5⅝	4	5	+ 3,117,911	+13,695,591
April	3½	4¾	3½	5¾	4	4½	— 2,075,783	— 1,003,369
May	2¾	4½	2¾	5½	3½	4⅝	+ 1,104,408	+ 7,906,232
June	2¼	4	2½	5⅞	3½	4⅝	+ 1,559,978	— 2,817,659
July	2⅞	4½	2¼	6	3½	4⅝	+ 3,516,705	+ 794,457
August	2½	5¼	2½	6	3½	4⅝	— 3,078,428	— 4,609,096
September	4⅝	5⅝	2½	6	3⅝	3⅝	— 3,632,380	— 4,130,711
October	5½	6	3½	5¾	4½	4⅝	—11,537,222	— 4,907,000
November	6	6	.....	.....	4½	.....	— 1,764,886	+ 377,824
December	6⅝	6	.....	.....	5	.....	—10,740,303	.....

\+ = excess of exports.
— = excess of imports.

INCORPORATIONS

According to the monthly statistics compiled by the *Journal of Commerce* for the incorporation of companies in the eastern states with an authorized capital of $1,000,000 or more, the first nine months of 1913 showed a decrease of $410,000,000 par value as compared with the corresponding months of 1912. The decline was especially noticeable in the latter part of the nine-months' period, the last four months, June to September, inclusive, representing only 271 millions out of a total for the period of 1,322 millions. In fact, for the month of September, the total reached the extremely low point of less than $44,000,000, thus furnishing further evidence of the very unsatisfactory condition surrounding the investment and speculative market of the year. On the preceding page are given the figures published by the *Journal of Commerce* for 1913 and the three preceding years.

THE MONEY MARKET

Like the years 1911-12, the year 1913 at no time experienced any stringency in the credit market, owing principally to the reactionary tendency of business, the lighter demands for the moving of the year's comparatively small crop, and the decision of the Treasury Department to assist with credit in the movement of crops. It

is true that at the close of October demand-loan rates reached 10 per cent., and the market for call money showed some degree of strain for nearly a week. This situation, however, was merely temporary, having been occasioned primarily by the accumulation of funds by the banks and trust companies for November dividends and interest payments at the very time when the crop-moving period was at its height. The temporary character of this call-money flurry was shown by the falling of call-loan rates immediately after Nov. 1.

Call-loan rates averaged for most of the months of 1913 from 2½ to 4½ per cent., and thus were lower on the average than during 1912, in which year call accommodations once reached 20 per cent., the most exacting since the 1907-08 panic period. Time-loan rates ranged between five and six per cent. during most of the year. At the end of October time money closed at 4¾ to 5¼ per cent. for 60-day paper, 5 to 5¼ per cent. for 90-day paper, and 5 to 5¼ per cent. for four-months paper, as compared with 5¾ to 6 per cent. last year. Five- and six-months loans ranged from 4¾ to 5¼ per cent., as compared with 5½ to 5¾ per cent. during 1912.

The general credit situation during the year, as viewed from the standpoint of the immediate future, is thus summarized by the *Commercial and Financial Chronicle* for Nov. 1:

> Business in various sections of the country is showing a reactionary tendency and the demands for banking accommodations are correspondingly lighter. Commercial paper is not being offered freely by merchants. Meanwhile the crop demands of the agricultural sections for currency seem to have reached their most active point and to be receding. The crop failures in some of the corn states have necessarily reduced the volume of the financial requirements for marketing facilities in those states, and the aid extended by the Treasury has, of course, been an added factor that has not been without influence. Meanwhile the spurt in business that many bankers expected promptly to follow the more settled conditions resulting from the final enactment of the new tariff has not developed; neither has there been any increase in the demand for loanable funds on Stock Exchange account. Thus, as we are gradually approaching the season when the agricultural sections will begin to release funds, the opinion is growing in influential banking circles that the market, after the current temporary strain passes, is more likely to go into a period of easier money conditions than into one of unusual activity.

PRICES AND COST OF LIVING

A slight increase in general commodity prices occurred during the first 10 months of 1913, thus showing a continuation of the tendency toward a higher price level noted in previous discussions of the subject in the YEAR BOOK. For the first 10 months of 1913 Bradstreet's index number stood at 9.2087, as compared with 9.1867 for the full year of 1912, 8.71 for 1911, 8.98 for 1910, and 7.88 for 1900. The highest point of the year was reached in January, when the index number stood at 9.4935. Subsequently, as shown by the accompanying table, a gradual decline occurred, until, in July, Bradstreet's reported the average price at 8.9521; but since July each month again showed a gradual increase, until in October the number was 9.1563. Similarly, as regards the London *Economist's* index number, which indicates the drift of commodity prices in England, the average level of prices for the first 10 months of 1913 stood at 2710, as compared with 2699 in 1912, 2542 in 1911, and 2125 in 1900. The tendency during the year, as shown by this number, is the same as that indicated by Bradstreet's index number, the high of 2747 having been reached in January, the low of 2669 in July, after which there was a gradual increase to 2714 in October.

This high level of prices is traceable to many causes, the chief of which are probably the continued large output of gold and the tendency toward under-production in our agricultural industry. Throughout the year, as already pointed out, in connection with the discussion of the gross and net earnings of American railroads, the high prices of the year have exerted a very powerful influence on the net returns of corporations, owing chiefly to the demands by wage earners for a higher wage return and the increased cost of materials entering all lines of business. This increased cost of operation, in turn, has probably been responsible for the severe decline in the value of corporate shares, and has also, in all probability, been responsible for the very unfavorable con-

ditions now prevailing in the investment market, especially in those securities whose income return is limited, that is, low interest bearing bonds and low dividend paying preferred stocks.

From the standpoint of the effect upon consumers, it is to be noted that the high price level has continued to be general; it having taken place in nearly all the important groups of commodities. An examination of the compilation of commodity prices, prepared monthly by the *Journal of Commerce*, shows this to be true. By comparing the *Journal of Commerce* prices for October, 1913, with those for the same month in 1912, it appears that in agricultural products prices are either about the same or considerably higher, the latter in those cases where a shortage in the crop occurred; in provisions, nearly all the standard commodities show an increase, with the exception of sugar and coffee, where the prices declined from 4.90 and 0.14⅜, respectively, to 3.61 and 0.11½; in the case of textiles and fabrics, all the classes enumerated show a moderate increase, except wool and hemp, where there has been a substantial decrease; in drugs and chemicals the average price level has remained about the same.

INDEX NUMBERS

Year	Bradstreet's	London Economist
1900	7.88	2125
1901	7.57	1948
1902	7.88	2003
1903	7.94	2197
1904	7.92	2136
1905	8.09	2342
1906	8.41	2499
1907	8.90	2310
1908	8.00	2197
1909	8.51	2390
1910	8.98	2373
1911	8.7129	2542
1912	9.1867	2699
1913, January	9.4935	2747
February	9.4592	2732
March	9.4052	2717
April	9.2976	2717
May	9.1394	2729
June	9.0721	2694
July	8.9521	2669
August	9.0115	2689
September	9.1006	2693
October	9.1563	2714
November	9.2202	2684
December	9.2290	...

THE CONDUCT OF BUSINESS

The New York Stock Exchange.—Eight new laws affecting the New York Stock Exchange were enacted by the New York legislature in 1913. Various new rules of importance were also adopted by the Exchange itself, most of them being in accord with the new laws enacted by the state. Following is an enumeration of these laws and stock exchange regulations:

1. The law of April 10, 1913, which declares that any person who inflates, depresses, or causes fluctuations in the market price of the shares or other securities of any corporation, or combines or conspires with any other person to accomplish this purpose, by means of pretended or fictitious transactions or devices shall be guilty of a felony, punishable by a fine of not more than $5,000 or by imprisonment for not more than two years, or by both. The law declares a pretended purchase or sale of any security, where no simultaneous change of ownership or interest therein is affected, to be *prima facie* evidence of the violation of this law. In this connection the New York Stock Exchange adopted a resolution, dated Feb. 5, 1913, to the effect that any stock exchange member, or any member of any stock exchange firm, who shall give, or with knowledge execute, orders for the purchase or sale of securities which would involve no change of ownership shall be liable to suspension for a period not exceeding 12 months.

2. The law of May 9, 1913, declaring any person who, with intent to deceive, makes, issues, or publishes, or causes to be issued or published, any statement or advertisement as to the value of the shares or other securities of any corporation, or as to the financial condition of such corporation, and who knows or has reasonable ground to believe that the representation, prediction or promise contained in the statement or advertisement is false, to be guilty of a felony punishable by a fine of not more than $5,000, or by imprisonment for not more than three years, or by both.

3. The law of May 9, 1913, which declares any person to be guilty of a

felony who, with intent to deceive, reports or publishes, or causes to be reported or published, any transaction in the stocks or other securities of any corporation, whereby no actual change of ownership or interest is effected. The offense is punishable by a fine of not more than $5,000, or by imprisonment for not more than two years, or by both.

4. The law of May 9, 1913, which declares that no stock or produce exchange shall hereafter make or enforce any by-law, regulation, or agreement, the purpose of which is to forbid the members of such exchange from dealing, at the regular rates of commission, with or for the members of another exchange. Any exchange or person refusing to deal with or for any customer on the ground that said customer is a member of some other exchange shall be guilty of a misdemeanor. Prior to the adoption of this law, the New York Stock Exchange members were governed by certain rules forbidding dealings with the members of other exchanges within the city of New York. These various rules, however, were rescinded by the Exchange on June 25.

5. The law of May 14, 1913, regulating transactions by brokers after insolvency. The law provides that any broker in stocks or other securities who, knowing that he is insolvent, receives money, stocks or other collateral from any customer who is unaware of the broker's insolvency, otherwise than in liquidation of or as security for an existing indebtedness, and thereby causes the customer to lose such collateral in whole or in part, is guilty of a felony punishable by a fine of not more than $5,000, or by imprisonment for not more than two years, or both. Insolvency is declared by the law to exist whenever the aggregate of the broker's property shall not, at a fair valuation, be sufficient in amount to pay his debts. The law furthermore forbids a broker to pledge or dispose of any customer's stock which he may have in his possession, without having any lien thereon or any special property interest therein, without the customer's consent; or to pledge a customer's securities on which he has a lien for indebtedness due to him by the customer for more than the amount due to him thereon, or otherwise to dispose thereof for his own benefit, without the customer's consent, "and without having in his possession or subject to his control, stocks, bonds, or other evidences of debt of the kind and amount to which the customer is then entitled, for delivery to him upon his demand therefor and tender of the amount due thereon." In case of any loss to a customer by a violation of either of the foregoing acts, the broker is declared to be guilty of a felony, punishable by a fine of not more than $5,000, or by imprisonment for not more than two years, or by both.

6. The law of May 17, 1913, forbidding brokers to trade against customers' orders. This practice is made a felony punishable by a fine of not more than $5,000, or by imprisonment for not more than one year, or by both; and "every member of a firm of brokers which is guilty of this practice, or consents to the doing of any act against the law, is to be regarded as guilty of a violation of the law."

7. The law of May 17, 1913, providing that a broker shall render to each customer a statement of every purchase or sale of securities, this statement to contain a description of the securities purchased or sold, the name of the person, firm or corporation from which the same were purchased or to whom sold, and the day and the hours between which the transaction took place. A broker's refusal to give such a statement to a customer within 24 hours after a written demand therefor, or who delivers a false statement, is to be considered guilty of a misdemeanor punishable by a fine not exceeding $500, or imprisonment not exceeding one year, or both.

8. A law against bucket shops, in many respects similar to the laws prevailing in other states.

9. In addition to the new rules adopted by the New York Stock Exchange mentioned above, those of Feb. 5, 13, and 25 should be mentioned as representing material changes. The resolution of Feb. 5 stipulated that "no Stock Exchange member, or member of a Stock Exchange firm, shall give, or with knowledge execute, orders for the purchase or sale of securities which would involve no change of

ownership," under penalty of suspension for a period not exceeding 12 months. The resolutions of Feb. 13 prohibit the acceptance and carrying of an account for a customer, whether a member or non-member, without proper and adequate margin, such conduct being declared to constitute an act detrimental to the interest and welfare of the Exchange; the improper use of a customer's securities by a member or his firm; and reckless or unbusinesslike dealings by any member, such act being declared contrary to just and equitable principles of trade. All three offenses were made punishable by suspension not to exceed one year. The Exchange, also, on Feb. 25, created a Committee on Business Conduct, whose duty it is to "consider matters relating to the business conduct of members with respect to members' accounts," and to "keep in touch with the course of prices of securities listed on the Exchange, with a view to determining when improper transactions are being resorted to." This committee is given power to examine into the dealings of any of its members with respect to the above-mentioned subjects, and to report its finding to the governing committee of the Exchange.

Blue-Sky Laws.—Not only did the state of New York seek to regulate the conduct of business on the nation's leading stock exchange, but numerous states during 1912 and 1913 enacted laws governing the sale of securities by investment companies, partnerships or brokers. These laws are commonly designated under the term of "blue-sky laws" and, considered in their aggregate, constitute one of the most important forms of state legislation during the year. The original act of this kind, enacted by the state of Kansas in 1911, was amended in many particulars in 1913; and most of the laws passed by the other states are based upon the Kansas statute and follow its general outline. Blue-sky laws have been enacted (during 1913 and the latter part of 1912) by the following states: Arizona, Arkansas, California, Florida, Idaho, Iowa, Kansas, Maine, Michigan, Missouri, Montana, Nebraska, North Carolina, North Dakota, Ohio, Oregon, South Dakota, Vermont, and West Virginia. Minnesota also passed a so-called "blue-sky law" in 1913, applicable only to the securities of insurance corporations or associations. A full reproduction of nearly all these laws may be found in a special bulletin issued by the Investment Bankers' Association of America, under date of April 26, 1913.

The general objects of blue-sky laws are: (1)) to define and provide for the registration, regulation, and supervision of foreign and domestic investment companies and their agents and representatives; (2) to regulate corporations and associations selling the stocks, bonds, or other securities issued by such investment companies; (3) to protect the purchasers of securities issued by such concerns; (4) to prevent fraud in the selling of such securities; and (5) to create some governmental authority to supervise such companies and otherwise administer the provisions of the law. A number of these laws also aim to regulate the business activities of brokers doing a general brokerage business in securities. The Kansas law, which served as a basis for the legislation in other states, aims to regulate and supervise every person, corporation, copartnership, or association (with the exception of banks, trust companies, building and loan associations, and certain other excepted organizations), which offer or negotiate for the sale of, or take subscriptions for, or sell, any stocks, bonds, or other securities (except certain securities like government, state, and municipal bonds, national bank stock, building and loan association stock, or shares in corporations not organized for profit) to any person in Kansas. As regards all persons, companies, and copartnerships coming under the law, the statute makes it unlawful to sell any of the securities mentioned without a permit from the Bank Commissioner, and before obtaining the permit every "investment company" (all persons and organizations coming under the law are designated as "investment companies") must file with the Bank Commissioner: (1) an itemized statement of its actual financial condition and the amount of its assets and liabilities; (2) a copy of all contracts, stocks and bonds or other securities which it proposes to make, sell, or

negotiate; (3) sample copies of all literature or advertising matter to be used by it in the sale of its securities; (4) a copy of its constitution and by-laws or articles of copartnership or association; and (5) if not organized under the laws of Kansas, a copy of its charter. Every foreign investment company must also comply with the laws relating to the admission of foreign corporations to do business in Kansas, and must file its irrevocable written consent that actions may be brought against it in the proper court of any county in the state in which the plaintiff may reside, and an agreement that such service shall be taken and held in all courts to be as valid and binding as if due service had been made upon the company itself, according to the laws of Kansas or any other state. The permit for the doing of business in the state is made subject to revocation at any time by the Bank Commissioner, who is also given the power to make a detailed audit and investigation of the investment company's affairs. All agents of investment companies must be registered as such by the Bank Commissioner before they can transact any business for the company. Moreover, any person who, knowingly or wilfully, subscribes to or causes any false statement or false entry in any book of such investment company, or exhibits any false paper with a view to deceiving any person authorized to examine into the affairs of the investment company, or makes or publishes any false statement as to its financial condition or the shares or other securities offered by it for sale, shall be deemed guilty of a felony, subject upon conviction to a fine of not less than $200 nor more than $10,000 and imprisonment for not less than one year nor more than 10 years. Agents who sell or attempt to sell the securities of any investment company, domestic or foreign, or of the shares and bonds offered by it for sale, and who have not complied with the law, shall likewise be deemed guilty of a felony and subject to a punishment of not less than $100 nor more than $5,000, or by imprisonment for not less than one year nor more than three years, or by both, at the discretion of the court.

As already stated, most of the "blue-sky laws" are modelled along the general lines of the Kansas law. It may be added, however, that the laws of several of the states apply to stock brokers, except that they are not required to file a copy of each stock certificate, bond, or other security they handle. Any person applying to the designated state official for a permit to do business as a stock broker is obliged to furnish evidence (to be confirmed as may be necessary) establishing his sound moral character and good business repute and showing for what length of time and in what capacities he has been engaged in the sale of securities. The state official having charge of the administration of the law is given authority to prohibit the stock broker from handling such securities as he deems doubtful or illegitimate investments, or to cancel said broker's permit at any time he decides that proper securities are not being handled by him. It may also be added that the Investment Bankers' Association of America is now taking an active part in testing the constitutionality of "blue-sky laws" based on the original Kansas Act. The constitutionality of the Michigan Act was argued on Oct. 1. According to newspaper accounts, it was contended in this trial that many of Michigan's important corporations could not have come into existence if the law had existed at the time the companies were floated.

International Standards for the Classification of Cotton.—In the past considerable friction has arisen through the disparity which existed between the official method of grading cotton used by the Liverpool Cotton Association (and with some modification by the Continental exchanges) and the systems of grading used by American exchanges and American exporters. The feeling has been very prevalent both here and abroad that the grades below "middling," in particular, were not satisfactorily "spaced," and that the nomenclature used to indicate the grades did not properly indicate the distinctions between them. In view of this general feeling it was undertaken, as explained in the AMERICAN YEAR BOOK for 1912 (p. 325), to have the entire matter

settled by an international conference of the interests involved, with a view to eliminating the present lack of uniformity by bringing the cotton interests on both sides of the Atlantic to an agreement on the use of well-defined and uniform standards. This conference, consisting of delegates from the American cotton exchanges, delegates from the exchanges of London, Bremen, and Havre, as well as from the International Federation of the Master Cotton Spinners' and Manufacturers' Association, was held in Liverpool in June, and brought the entire matter to a satisfactory conclusion. The Liverpool Cotton Exchange, on Oct. 8, adopted the revised standard rules for the classification of cotton of American growth as recommended by the conference.

Toward the close of October the cotton exchanges of the United States likewise took an important step toward the establishment of a universal standard for the American product. Representatives of 20 American exchanges, including those at New York and New Orleans, held a conference with the Secretary of Agriculture, to whom they proposed that the Department of Agriculture should adopt the standards of grading and nomenclature acceptable to the cotton exchanges and as adopted by the international conference, in order that all American exchanges might thus adopt the standard and make it universal throughout the world. Under this plan a quotation on any particular grade of cotton would mean the same thing the world over, since the grade would have the same meaning everywhere. Besides benefitting the trade as a whole, the plan would result in eliminating one leading divergent view which for a long time has existed between the Government and some of the American exchanges. The Secretary of Agriculture is reported as having expressed his belief that the change would be made, and that legislation for the fixing of grades would thus be unnecessary.

Cotton Bills of Lading.—An outline was given in the YEAR BOOK for 1912 (p. 326) of the proposed plan of the Liverpool Bill of Lading Conference Committee in 1911 to create a central bureau in New York City for the purpose of verifying the genuineness of all through cotton bills of lading. This central bureau, as explained, was put in operation in New York on Sept. 1, 1912. Asccording to Charles H. Haight, the American representative of the Liverpool Bill of Lading Conference Committee, final action was taken during the summer of 1913 by all European cotton interests in favor of the permanent organization of the bureau. The coöperation of the cotton carrying railroads of the United States, Mr. Haight reports, has been unanimous, 116 roads having signed the agreement with the Liverpool Bill of Lading Committee and the American Bankers Association. There was, however, a feeling on the part of shippers and certain influential bankers in America that the Central Bureau ought to be taken over by the European interests, and operated as their bureau and at their expense. Consequently, on July 29, 1913, the Liverpool Committee decided to take over the Bureau, to incorporate it, and to run it at the expense of the foreign interests. Despite the claims of the coöperation of shippers made by those interested in the Bureau, however, various trade journals have pointed out that as yet only a small percentage of American cotton exporters have availed themselves of its facilities, and that the principal exporters and exchange buyers continue to ignore it.

Taxation of Cotton Futures.—Every year seems to be marked by attempts to pass laws which have for their object the destruction or severe curtailment of future contracts on our exchanges. In 1913 the Clarke amendment to the Tariff Act sought to place a tax of about $50 per 100 bales on contracts for the future delivery of cotton in accordance with the rules of cotton exchanges. Such a tax would have proved a burden so heavy as to have destroyed future contracts, and thus prevented the necessary practice of hedging holdings of cotton against price fluctuations. A vigorous protest was registered against this proposed legislation by practically all exchanges, including the southern exchanges which do not have a future contract market. The Savannah Cotton Exchange, for example, stated in its protest: "This amendment, by de-

stroying the American future markets, will demoralize the whole system by which the cotton crop is moved, and will, in consequence, bring distress upon all concerned in the cotton trade." As a result of the protests against the imposition of this prohibitive and destructive tax, Mr. Underwood, in the first week of October, submitted a substitute amendment, which was adopted by the House by a vote of 171 to 161. This so-called Smith-Lever amendment imposed only a slight tax on future contracts made on domestic exchanges, provided such contracts conformed to certain specific requirements as to the grades of cotton which may be delivered and the method of valuing the several grades thus delivered. Contracts, however, involving the future delivery of cotton on foreign exchanges, if made by American residents, remained subject to the prohibitive tax irrespective of the grades delivered and the method of valuation of such grades used. Through disagreement between the Senate and the House the proposed tax on cotton futures was omitted entirely from the Tariff Act. There is every likelihood, however, that legislation similar to the Smith-Lever bill will be pressed in future sessions of Congress. If it should be enacted into law about 20 per cent. of the nation's cotton crop in normal years and from 30 to 50 per cent. in years of abnormal rains or early frosts will be excluded from contract deliveries. (See also I, *American History.*)

Anti-Trust Legislation in New Jersey.—Several anti-trust bills (the so-called "Seven Sisters," known as Chapters 13 to 19 of the laws of New Jersey, 1913), passed by the New Jersey legislature, were approved by Governor Wilson on Feb. 19. These acts, having for their purpose the prevention of monopolies, have been widely discussed, partly because many of the largest industrial combinations have been organized under the laws of New Jersey, which have been extremely liberal for organization purposes, and partly because they were inspired by President Wilson, and have therefore been regarded as indicative of the policy which the national Administration is likely to pursue with reference to combinations (see also I, *American History*). The provisions of the seven acts may be summarized as follows:

1. The first of the bills defines a trust as a combination or agreement between corporations, firms or persons for the following purposes: (1) creating or carrying out restrictions in trade, or acquiring a monopoly, either in intrastate or interstate business or commerce; (2) limiting or reducing production and increasing prices; (3) preventing competition in production, transportation or marketing of any commodity; (4) fixing a standard price with a view to controlling the price of any commodity; (5) making any agreement by which, directly or indirectly, free and unrestricted competition among the parties to the agreement is precluded, either by pooling, withholding a commodity from the market, or fixing the price of sale; and (6) making any secret oral agreement or understanding with the object of accomplishing any of the abovementioned purposes. Any person or corporation violating the law in any of these particulars is to be regarded as guilty of a misdemeanor. In the case of a corporation the offense shall also be deemed to be that of the individual directors of the company, and the charter of the offending company may be revoked.

2. All corporations, firms or persons engaged in the production, manufacture, distribution or sale of any commodity are forbidden to discriminate between different corporations, firms, persons, etc., or different sections, cities or communities by charging one a lower price than another for a given commodity or service.

3. Corporations may purchase real and personal property, and the stock of any corporation necessary for its business, and may issue stock to the amount of the value thereof in payment therefor, provided the purchasing corporation "receive in property or stock what the same is reasonably worth in money at a fair *bona-fide* valuation." No fictitious stock can be issued, nor may stock be issued "for profits not yet earned, but only anticipated." When a corporation issues stock on the basis of the stock purchased from any other corporation, the amount of new stock issued thereon

cannot be for a greater amount "than the sum actually paid for such stock in cash or its equivalent." Moreover, the property purchased by a corporation, or the property owned by a corporation whose stock is purchased, "shall be cognate in character and use to the property used or contemplated to be used by the purchasing corporation in the direct conduct of its own proper business." The directors of the purchasing company, or a majority of them, must file a statement in writing with the Secretary of State certifying to the various facts coming under this Act, and any false representation in this certificate makes all the officers who signed the same, knowing it to be false, guilty of a misdemeanor.

4. Persons incorporating any corporation under the laws of the state with fraudulent or unlawful intent, or for the purpose of restraining trade or acquiring a monopoly, shall be guilty of a misdeameanor when such corporation engages in interstate or intrastate commerce. The officers, directors and managers of corporations organized for such fraudulent or unlawful purposes shall also be guilty of a misdemeanor.

5. In case two or more corporations are merged or consolidated, the consolidated corporation may issue bonds or other obligations "to an amount sufficient with its capital stock to provide for all the payments it will be required to make, or obligations it will be required to assume, in order to affect such merger or consolidation," provided that such bonds shall not bear more than six per cent. interest per annum.

6. No corporation heretofore organized, or to be organized, can "hereafter purchase, hold, sell, assign, transfer, mortgage, pledge or otherwise dispose of the shares of the corporate stock of any other corporation or corporations of this or any other state, or of any bonds, securities or other evidences of indebtedness created by any other corporation or corporations of this or any other state, nor as owner of such stock exercise any of the rights, powers and privileges of ownership, including the right to vote thereon." Provision, however, is made that a corporation is not prevented from (1) acquiring the bonds, securities or other evidences of debt created by any non-competing corporation in payment for any debts which it may owe; (2) purchasing as a temporary investment out of its surplus earnings, the capital bonds and other securities created by any non-competing corporation; or (3) investing its funds in such securities when held by it for the benefit of its employees or any funds held for insurance, rebuilding or depreciation purposes.

7. Mergers of corporations shall not in any way impair the rights of any creditor of either of the merged corporations. The approval for any merger of corporations must be obtained in writing from the Board of Public Utilities Commissioners of the state, such approval when obtained by said corporations to be filed in the office of the Secretary of State before the merger can be made.

Anti-Trust Prosecutions. — A decision of the U. S. Supreme Court on Jan. 6, 1913, declared that a conspiracy to run a "corner" in a commodity such as cotton is an act in violation of the Sherman Anti-Trust Act. This case was the outcome of an indictment returned as a result of the Government's inquiry in 1910 into an alleged cotton pool agreement which it was charged constituted a conspiracy in restraint of interstate trade and commerce in cotton, and a "corner" in the commodity on the New York Cotton Exchange. The Supreme Court's decision reversed the opinion of Judge Noyes of the U. S. Circuit Court for the Southern District of New York, which contended that while "corners" are illegal, they are not combinations in restraint of interstate trade.

A suit was filed by the Federal Government in Chicago charging the Chicago Board of Trade with violating the Sherman Anti-Trust Act by arbitrarily fixing the price of leading cereals to be received in Chicago. The suit was aimed against the practice of fixing the so-called "call price" of grain each day at the close of trading hours. The Government's contention is to the effect that grain bought by members of the Exchange is designated as "grain to arrive," and that the Exchange establishes a "call price"

under its rules for this "to arrive" grain. In this way, it is charged, the Exchange "fixes the price to be offered for such staples bought or sold from the closing hour to the opening hour of the following day." Since the session of the Exchange is limited to four hours, these fixed "call prices" thus control the bids of grain dealers for the remainder of the day. The practice is regarded in the charge as amounting to a combination having in view the prevention of competition, especially since the Exchange is held to dominate the grain market in a large section of the country.

A decision of the U. S. Supreme Court on Dec. 2, 1912, reversed the decision of the U. S. Circuit Court of the Eighth District at St. Louis on June 24, 1911, and unanimously held that the Harriman merger of the Union Pacific and Southern Pacific Railroad Companies constituted a combination in restraint of trade within the meaning of the Sherman Anti-Trust Act, and must be dissolved. One of the most important points in the case dealt with the question as to whether the Union Pacific actually obtained control of the Southern Pacific when it had acquired only a minority interest in the stock. On this point the Court explained that, while "it may be true that in small corporations the holding of less than a majority of the stock would not amount to control, the testimony in this case is ample to show that, distributed as the stock is among many stockholders, a compact united ownership of 46 per cent. is ample to control the operations of the corporations." (See also IX, *Law and Jurisprudence;* and XXII, *Railroads.*)

A decision of the U. S. Supreme Court on Dec. 3 reversed the decision of the Supreme Court and Court of Appeals of the state of New York in the case of Straus *v.* American Publishers Association *et al.*, and held that agreements entered into by publishers and booksellers not to sell copyrighted books to concerns who retail books at less than the prices fixed by the publishers are in violation of the Sherman Act. This case has been in the courts about 11 years. It arose out of the acceptance by about 75 per cent. of the publishers of the United States of regulations for the supply of books to retailers laid down by the American Publishers Association, which authorized the sale of books only to such booksellers as would agree to maintain the prices fixed by the publishers. In accordance with these regulations R. H. Macy & Co., of New York, who refused to enter into an agreement to maintain prices, were refused supplies by the publishers, and various means were used to prevent them from obtaining books through indirect channels. They brought suit in the New York courts to have the alleged combination of publishers declared illegal under both the state and Federal anti-trust laws. The New York Supreme Court held the fixing of prices to be illegal under the state law so far as it concerned uncopyrighted books, but refused to enjoin the defendants from continuing the agreement concerning copyrighted books, a decision subsequently confirmed by the state Court of Appeals (177 N. Y., 473). The unanimous decision of the Supreme Court holds the agreement to be illegal with regard to both copyrighted and uncopyrighted books and declares that "no more than the patent statute was the Copyright Act intended to authorize agreements in unlawful restraint of trade and extending to monopoly in violation of the terms of the Sherman Act."

Other Supreme Court Decisions.—Two other important Supreme Court decisions of the year vitally affecting the future conduct of business are considered elsewhere in this volume. The first of these was the decision in the Minnesota Rate Cases, reversing the decision of the U. S. Circuit Court and affirming the right of a state to regulate railroad rates on traffic moving wholly within its borders (see IX, *Law and Jurisprudence;* and XXII, *Railroads*). The other was the decision in the case of Bauer et Cie. and the Bauer Chemical Co. *v.* James O'Donnell, denying the right of the holder of a patent to maintain the retail price of the patented article by notice on the package warning the retailer that sales made at a price lower than that fixed would be regarded as infringement of patent (see IX, *Law and Jurisprudence.*)

XIV. PUBLIC FINANCE, BANKING, AND INSURANCE

PUBLIC FINANCE

C. C. WILLIAMSON

FEDERAL FINANCE

Appropriations for 1914.—Total appropriations for 1914, regular, miscellaneous and permanent, amount to $1,098,647,960, or $79,011,817 more than the appropriations for 1913, and $6,559,003 less than the estimates. (See also I, *American History;* and V, *National Administration.*)

Receipts and Expenditures.—The following tables show the ordinary receipts and expenditures, and the financial transactions for the Panama Canal, for the years ending June 30, 1912, and June 30, 1913, in millions of dollars:

	1912	1913
ORDINARY RECEIPTS		
Customs	311	318
Internal revenue:		
Ordinary	293	309
Corporation tax	29	35
Miscellaneous	59	61
Total	692	724
ORDINARY EXPENDITURES		
Civil and miscellaneous	174	171
War	149	160
Navy	136	133
Indians	20	20
Pensions	153	175
Postal deficiency	2	1
Interest on public debt	23	23
Total	657	684
Less repayment of expended balances	2	1
Excess of ordinary receipts over ordinary expenditures	37	41
PANAMA CANAL		
Receipts (sale of bonds)	33	..
Expenditures	35	42
Excess of expenditures over receipts	..	42
PUBLIC DEBT		
Receipts	21	23
Expenditures	29	24
Excess of expenditures over receipts	8	1
Excess of all expenditures over receipts	*26	2
Balance in General Fund at close of year	167	165

* Excess of receipts over expenditures.

Public Debt.—The following is a statement of the public debt of the United States as of June 30, 1913:

Interest bearing debt:		
2s, Consols of 1930		$646,250,150
3s, Loan of 1908-1918		63,945,460
4s, Loan of 1925		118,489,900
2s, Panama Canal Loan, 1906		54,631,980
2s, Panama Canal Loan, 1908		30,000,000
3s, Panama Canal Loan, 1911		50,000,000
2½s, Postal Savings bonds, 1911-1912		1,314,140
2½s, Postal Savings bonds, 1912		1,074,980
Debt bearing no interest:		
United States notes (greenbacks)	$346,681,016	
National Bank notes (redemption account)	22,092,806	
Old demand notes	53,153	
Fractional currency	6,854,610	
Debt on which interest has ceased:		
Funded loans of 1891	$28,650	
Loan of 1904	13,250	
Funded loan of 1907	700,400	
Refunding certificates	13,570	
Old debt	903,680	
Certificates and notes issued on deposits of coin and silver bullion:		
Gold certificates	$1,086,727,169	
Silver certificates	483,550,000	
Treasury notes of 1890	2,660,000	
Total interest bearing debt		$ 965,706,610
Total debt on which interest has ceased		1,659,550
Total debt bearing no interest		375,681,584
Total interest and non-interest bearing debt, June 30, 1913		$1,343,047,744
Certificates and Treasury notes offset by cash in the Treasury		$1,572,937,169

Budget Reform.—President Taft's fruitless efforts towards securing a much needed reform in our budgetary methods were recorded in the last issue of the YEAR BOOK (p. 331). On Feb. 26, 1913, he transmitted to Congress a message in which he outlined again the whole budgetary situation and repeated his recommendations. That the matter was not entirely dropped with the change of administration gives some ground for hope that relief will not be long delayed. The first caucus of the new Democratic House authorized the appointment of a special committee which worked out a plan for a standing Committee on the Budget, to be composed of the chairman of the Ways and Means Committee, the chairman of the Appropriations Committee and the chairmen of each of the other House committees having power to report appropriation bills. At the beginning of each session this budget committee would determine what the total amount of appropriations should be and apportion it among the various spending committees. While this would not have accomplished all that President Taft's proposals aimed at, it would have done something toward coördinating income and expenses and eliminating wasteful appropriations. On June 25, however, the House caucus voted against the plan, the opposition growing partly out of the fear that the proposed committee would absorb too much of the power now lodged in the hands of independent appropriating committees. The defeat of this particular plan is important only as showing again the nature and source of the opposition which any reform measure must overcome.

New Method of Handling Receipts and Disbursements.—Beginning with Feb. 1, 1913, the daily receipts from customs, internal revenue, and other sources, have been placed in depositary banks to the credit of the Treasurer of the United States. From the same date all checks of Government disbursing officers have been drawn on the Treasurer and are payable at the Treasury, any sub-treasury, or any national bank depositary in the country. The Government has hitherto insisted that customs and internal revenue receipts should be deposited in the sub-treasuries in the form of currency; checks drawn on the sub-treasuries have also been paid in currency. Under the new order the Treasury's debits and credits are offset in the banks and only the excess (where there is an excess) passes into the Treasury. The purpose of the change was to put the Government's business transactions abreast of the methods employed in all well regulated businesses. It also has the advantage of giving an exact daily knowledge of the Government's finances and adds to the convenience of Government creditors.

Interest on Public Deposits.—Beginning on June 1, 1913, all banks holding deposits of public money are required to pay interest at the rate of two per cent. per annum on monthly balances, to be credited semi-annually, Jan. 1 and July 1. Previous to May, 1908, the Government received no interest on any of its deposits. Under authority of the Aldrich-Vreeland Act, the Secretary of the Treasury required an interest payment of one per cent. on special deposits after June 15, 1908. Beginning with July 1, 1912, the rate was raised to two per cent. on "inactive" accounts. Secretary McAdoo's order, issued April 30, 1913, extends the two per cent. rate to both "active" and "inactive" accounts. An agitation started in Congress in 1912 to obtain legislation requiring public depositaries to be selected competitively resulted in an investigation of the entire subject of Government deposits in national banks and the amount of surplus working capital in the Treasury by the Committee on Expenditures in the Treasury Department. Its report (Feb. 24, 1913) assumes that interest at the rate of two per cent. could have been collected, and finds that the Government has therefore lost in the last 26 years the sum of $84,211,783, $36,600,923 on non-interest bearing deposits and $47,610,860 on surplus unnecessarily retained in the Treasury. For the sake of the additional revenue, and also because the designation of certain banks as Government depositaries is regarded as a species of "special privilege" or "government favoritism," the Com-

mittee recommended competitive bidding in the selection of depositaries.

Tariff Revision.—The process of revising the Payne-Aldrich Tariff, to which the Democratic party had pledged itself, formally began on Jan. 6 when the Committee on Ways and Means held the first of a series of hearings lasting through the month. On Feb. 3 the Committee began the work of framing a bill, the foundations for which had already been laid in the bills prepared in 1911 and 1912, passed by one or both houses of Congress, and vetoed by President Taft (*A. Y. B.*, 1912, pp. 332-34). For some time the President and the leaders in Congress had before them the question as to whether they should consider one schedule at a time and pass a separate bill for each, as had been done in the two preceding sessions, or whether revision should be embodied in a single bill. The plan of separate bills was especially favored by many Senators, but as several of the reductions to be proposed were certain to meet with strong opposition in the Senate, it was feared that revising one schedule at a time would mean the defeat of certain important features which the Democratic leaders felt themselves pledged to carry through. President Wilson finally threw his great influence in favor of a single bill as a "means of expediting legislation," and that was the method adopted.

The Underwood Bill.—Congress assembled in special session on April 7 and the Underwood bill was introduced on the opening day. Its subsequent course is described in detail in another part of the YEAR BOOK (I, *American History*). The first stage was reached on April 21, when the bill was reported to the House by the Committee on Ways and Means (H. Rep. 5, 63d Cong., 1st sess.). A noteworthy feature of this report was a tariff handbook of 914 pages published as an appendix. It contains, in addition to a comparison of the Act of 1909 and the proposed bill, a most elaborate comparative presentation of data relating to previous tariffs, and a comparison of the ad valorem duties under the tariffs of the United States and selected foreign countries.

In its report the Democratic majority of the Committee took occasion to state the general grounds for a sweeping reduction of rates. The protective tariff policy, in the opinion of the Committee, had persisted so long, not because it represented the deliberate wish of the people, but rather because special interests had managed in one way or another to continue on an abnormally high level the duties made necessary by the revenue needs at the time of the Civil War. Though it did not definitely assert it as a fact, the report implied that there is a close connection between the protective tariff and an increase of nearly 50 per cent. in the cost of living from 1897 to 1913. The development of trusts or industrial combinations during the same period was also pointed out. Responsibility for the too rapid depletion of our natural resources was assigned directly to the policy of protection "which has cut off the United States from the sources of supply to which it would otherwise have resorted in the natural course of events." Perhaps the most serious indictment brought against the protective system was the charge that it has caused the continuance of obsolete machinery and hopelessly out-of-date methods in the highly protected industries.

The Competitive Tariff Theory.—The cost-of-production theory of tariff legislation the Committee emphatically rejected *in toto*, not alone on the ground that costs are unobtainable, but also because it believed that money expenses of production are not to be taken as an indication of a country's productive power. Moreover, costs of production within a country are far from uniform. Protection is usually needed not by the most efficient producers, but by the least efficient, or those whose discontinuance would be a benefit instead of an injury to the country. It is recognized, however, that great hardship would result to both labor and capital by attempting to eliminate suddenly all the existing evils. The aim of the bill presented was finally declared to be

> to introduce in every line of industry a competitive basis providing for a substantial amount of importation, to the end that no concern shall be able to feel that it has a monopoly of the home mar-

ket gained other than through the fact that it is able to furnish better goods at lower prices than others.

This, in short, is the competitive-tariff theory, which the Democrats adopted in lieu of the rejected cost-of-production theory. "The protection of any profit," declared the report, "must of necessity have a tendency to destroy competition and create monopoly, whether the profit protected is reasonable or unreasonable." The development of combinations in home industries has proceeded so far that domestic competition can no longer be relied upon to regulate prices. The time has now come when we must invite foreign competition by reducing the tariff, or else we must look to government regulation of prices. (See also I, *American History.*)

Reductions in the Underwood Bill.—The Underwood bill represented in general a reduction from the average rate of the Payne-Aldrich act of about 26 per cent. Reductions schedule by schedule are shown in the following table:

Schedule	Equivalent Ad Valorem, Per Cent.	
	Payne-Aldrich	Underwood
A. Chemicals, oils and paints	25.91	19.64
B. Earths, earthenware, and glassware	50.72	33.17
C. Metals and manufactures	34.35	20.19
D. Wood and manufactures	12.46	3.59
E. Sugar, molasses and manufactures	48.18	35.93
F. Tobacco and manufactures	92.18	84.99
G. Agricultural products and provisions	29.01	16.87
H. Spirits, wine and other beverages	83.98	83.30
I. Cotton manufactures	45.51	30.48
J. Flax, hemp, jute, and manufactures of	45.14	26.06
K. Wool, and manufactures of	55.98	18.50
L. Silks and silk goods	51.54	43.98
M. Pulp, papers and books	21.41	11.85
N. Sundries	24.72	33.26
Average for all schedules	40.12	29.60

Revision in the Senate.—The Underwood bill passed the House on May 8 by a vote of 281 to 139. It was not until July 18, however, that the Senate Committee on Finance completed its report (S. Rep. 80, 63d Cong., 1st sess.) and announced its general agreement with the principles upon which the House had proceeded in its revision. It proposed, however, "to further carry out and perfect the theory of establishing a revenue-producing tariff upon the basis of competitive rates" and announced that its bill "would tend to disintegrate the monopolies," "enlarge opportunity to individual effort," and "reduce the cost of living." The majority report submitted by Chairman Simmons estimated that the average rate of duty had been reduced from 27.84 per cent. under the House bill to 26.67 per cent. and placed the loss of revenue through transfers to the free list at $44,366,911. This extension of the free list affected principally creosote, cement, asphalt, agricultural implements of all kinds, and pig iron, together with various allied iron products in the nature of raw or semi-raw materials. Iron ore was placed on the free list "mainly because it was found that the domestic supply of iron ore was largely controlled by the United States Steel Corporation." Rates were reduced likewise upon many of the more finished products, because, said the Committee, "the steel industry is making large returns and is amply able to hold its own in the world market, as well as against foreigners in the domestic trade." On other metals the House rates were raised. Indeed, a great many rates were raised by the Senate Committee, though in its report attention is called only to the reductions. The bill passed the Senate on Sept. 9 by a vote of 44 to 37, and, after final revision in conference between the two houses, was signed by the President on Oct. 3.

Rates and Free List of the Underwood-Simmons Act.—It should be pointed out that the bill signed by the President left several schedules practically unchanged, that the reductions in other schedules are not uniformly drastic, and that in many cases rates are higher than they were before. Tobacco, wine and spirits, and silks are left about as they were. The great reductions are made in the schedules dealing with cotton textiles, flax and hemp and their textile products, wool and woolens, iron and steel, sugar, and agricultural products.

On another page will be found a table showing changes of rates in the metal and textile schedules (see XXI, *Manufactures*). The table on the next page shows the changes of rates affecting the principal commodities of which the dutiable imports in 1912 reached the value of one million dollars. It will be noticed that for about one-half of the items the rate remains the same or has been increased. Rates marked by the asterisk are the ad valorem equivalents of actual rates and are given here for the sake of easy comparison of the old with the new.

Influence of the President.—One of the most interesting features of the tariff revision was the unprecedented influence exerted by the President at every stage of the process. Before Congress convened he was studying the bill with Chairman Underwood and conferring with Democratic House leaders; later he was reported to be canvassing the Senate to learn the nature and extent of the opposition to free wool and free sugar, which he regarded as essential features of the bill. The unexpected harmony within the ranks of the dominant party can be attributed in no small degree to the skilful leadership of the President. Without his constant attention it is safe to say that the bill could not have been passed in anything like its original form.

Tariff Commission.—In spite of some efforts to interest the Democratic Congress in creating a Tariff Commission, little or nothing has been done. A bill introduced by Senator Lodge on April 6, 1911, and reported with amendments by the Senate Finance Committee on Feb. 20, 1913, provided for a commission of five members, appointed by the President, with authority to investigate the cost of production at home and abroad of all dutiable articles. The short-lived Tariff Board appointed by President Taft reported directly to the President; the board proposed by Senator Lodge would have reported its findings either to Congress or to the President. No action was taken, but the proposal served to call forth Democratic accusations of insincerity on the part of the Republicans in their advocacy of the tariff-commission idea. Ever since its establishment in 1888 the Bureau of Labor (and since Aug. 23, 1912, the Bureau of Foreign and Domestic Commerce) had been specially charged with all the duties it has been proposed to assign to the special Tariff Commission. A Republican Congress desiring a "scientific" revision of the tariff could have had it at any time simply by making the appropriation necessary to set the machinery in motion. Not, it was alleged, until the Democrats got control of the House did the Republicans become interested in revision by commission.

Income Tax Legislation.—Early in the year the income tax amendment which had been before the states since July, 1909 (*A. Y. B.*, 1910, pp. 36, 111, 327; 1911, pp. 151, 292; 1912, p. 333), received the final two ratifications necessary to put it into effect, and on Feb. 25 by proclamation of the Secretary of State it became a part of the Federal Constitution (see also I, *American History*). Section 2 of the Tariff bill as introduced on April 7 levied a tax of one per cent. on all net incomes in excess of $4,000, with a surtax for the larger incomes, to meet the revenue losses arising from the reductions in tariff rates. Various criticisms and objections, directed not so much against the principle of the bill as to the methods proposed, were urged in and out of Congress, certain life-insurance companies being especially active in their opposition. The most general criticism was aimed at the collection-at-the-source method and at the liberal exemption of $4,000, which caused the bill to be referred to as a piece of class legislation. Several important amendments were made in the Senate Committee on Finance, the most important being a reduction in the amount of income exempted from $4,000 to $3,000, with an additional exemption in case the taxpayer has a dependent wife or husband.

The Ways and Means Committee took occasion in its report to emphasize the inherent injustice of raising all Federal revenues by means of indirect taxes and to urge the enactment of an income tax to equalize the burden of taxation and also to introduce into our revenue system a much needed element of elasticity.

TARIFF RATES ON PRINCIPAL COMMODITIES OF IMPORT

	Values of Imports in 1913	Rate of Duty	
		Act of 1909	Act of 1913
Almonds, shelled	$2,689,615	6 cents per lb.	4 cents per lb.
Almonds, not shelled	464,042	4 cents per lb.	3 cents per lb.
Argols (crude tartar)	2,223,439	5 per cent.	5 per cent.
Automobiles:			
Value over $2,000	2,199,567	45 per cent.	45 per cent.
Value under $2,000		45 per cent.	30 per cent.
Finished parts		45 per cent.	30 per cent.
Bags or sacks of jute	2,937,331	*28.84 per cent.	10 per cent.
Beans	1,465,656	45 cents per bu.	25 cents per bu.
Books	2,880,277	25 per cent.	15 per cent.
Brandy and other spirits distilled from grain	5,233,164	$2.60 per gal.	$2.60 per gal.
Brushes	2,067,149	40 per cent.	35 per cent.
Buttons and parts of buttons	1,130,359	*48.04 per cent.	40 per cent.
Carpets and carpeting (wool)	3,781,059	*58.10 per cent.	50 per cent.
Castor beans	1,080,619	25 cents per bu.	15 cents per bu.
Cattle	4,500,352	*27.07 per cent.	Free
Cheese and its substitutes	8,807,249	*31.79 per cent.	20 per cent.
Chicle (crude)	2,433,924	10 cents per lb.	15 cents per lb.
China, porcelain, etc., painted	8,553,672	60 per cent.	40 or 55 per cent.
Cigars, cigarettes, etc	5,350,896	$4.50 per lb. and 25 per cent.	$4.50 per lb. and 25 per cent.
Cloths, knit fabrics, etc., chiefly of wool	5,145,929	*94.03 per cent.	35 per cent.
Coal, bituminous	3,711,479	45 cents per ton	Free
Coal tar dyes	6,965,121	30 per cent.	30 per cent.
Coal tar products (not dyes)	3,000,192	Free	10 per cent.
Cork, manufactures of	2,178,085	*20.11 per cent.	30 per cent
Diamonds, cut but not set	24,537,150	10 per cent.	20 per cent.
Diamonds, uncut	9,833,513	Free	10 per cent.
Fabrics of flax, hemp, etc	13,798,151	*52.50 per cent.	35 per cent.
Feathers and downs, not dressed	4,980,662	20 per cent.	20 per cent.
Feathers and downs, dressed	1,374,922	60 per cent.	40 per cent.
Feathers, artificial or ornamental	2,082,964	60 per cent.	60 per cent.
Flax, hackled	1,280,465	$67.20 a ton	Free
Flax, not hackled	2,252,099	$22.40 a ton	Free
Furs, dressed on skin	5,345,802	20 per cent.	30 per cent.
Gloves	7,804,597	*44.15 per cent.	*31.77 per cent.
Glycerin, crude	3,674,926	1 cent per lb.	1 cent per lb.
Hats, bonnets, etc., chiefly of straw, chip, grass, palm leaf, willow, osier, etc., wholly or partly manufactured	3,948,966	35 per cent.	25 per cent.
Hats, blocked or trimmed	343,934	50 per cent.	40 per cent.
Hay	6,473,230	$4.00 a ton	$2.00 per ton
Hops	2,231,348	16 cents per lb.	16 cents per lb.
Licorice root	1,309,789	Free	¼ cent per lb.
Linoleum, plain, stamped or printed	961,098	*38.76 per cent.	30 per cent.
Linoleum, patterns inlaid	906,087	*52.27 per cent.	35 per cent.
Musical instruments and parts of	1,614,410	45 per cent.	35 per cent.
Olive oil, in bottles	4,336,199	50 cents per gal.	30 cents per gal.
Olive oil, all other	1,729,492	40 cents per gal.	20 cents per gal.
Olives	2,169,364	15 cents per gal.	15 cents per gal.
Opium, containing 9 per cent. or over of morphia, crude	2,020,026	$1.50 per lb.	$3.00 per lb.
Opium, dried, etc	641,887	$2.00 per lb.	$4.00 per lb.
Peas	1,515,516	25 cents per bu.	10 cents per bu.
Perfumeries, etc., containing alcohol	735,642	*72.08 per cent.	*74.29 per cent
Perfumeries, not containing alcohol	524,087	*59.98 per cent.	60 per cent.
Pipes (except clay) and smokers' articles	1,342,319	*60 per cent.	50 per cent.
Potatoes	7,175,375	25 cents per bu.	Free
Ready-made clothing:			
Wool	2,171,477	*79.56 per cent.	35 per cent.
Cotton	1,910,073	*50 per cent.	30 per cent.
Rice flour, rice meal and broken rice	1,968,177	¼ cent per lb.	¼ cent per lb.
Shingles	1,759,429	*20.05 per cent.	Free
Toys and dolls	7,758,382	35 per cent.	35 per cent.
Walnuts, not shelled	1,642,960	3 cents per lb.	2 cents per lb.
Walnuts, shelled	2,086,678	5 cents per lb.	4 cents per lb.
Wire and articles made of wire	1,416,865	*39.45 per cent.	15 per cent.

*Equivalent ad valorem rates.

The income tax once made a permanent part of our tax machinery can, by simply changing the rate, be made to cover a deficit or prevent a surplus in the Treasury without creating the business disturbances that always accompany a general revision of the tariff rates.

Summary of the Act.—The principal features of the income tax law as finally passed and approved may be summarized as follows. Every citizen of the United States and every person residing in the United States is subject to a personal income tax on his entire net income in excess of $3,000. Income from property or business in the United States is also subject to the personal income tax. Besides the specific exemption of $3,000, as explained above, there is an additional exemption of $1,000 for a married man whose wife lives with him or for a married woman whose husband lives with her. In calculating taxable incomes various deductions are permitted, the most important of which are: (1) expenses of carrying on any business; (2) interest paid on a person's indebtedness; (3) all state and local taxes; (4) losses not compensated by insurance; (5) uncollectable debts charged off; (6) a reasonable allowance for depreciation; (7) dividends of corporations paying the one per cent. tax (see *infra*); (8) income upon which the tax has been collected at the source; (9) interest received from public securities and salaries of state and local officials.

The rate of one per cent. on taxable incomes up to $20,000 is known as the "normal tax." Incomes exceeding $20,000 are subject to an additional tax, or surtax, as follows:

	Per Cent.
$20,000 to $50,000	1
50,000 to 75,000	2
75,000 to 100,000	3
100,000 to 250,000	4
250,000 to 500,000	5
Over 500,000	6

It should be noted that these higher rates do not apply to total income, but only to the fraction in excess of the amount which calls for the higher rate. Thus, a net taxable income of $300,000 does not pay five per cent. on $300,000, but only on $50,000, and four per cent. on $150,000, three per cent. on $25,000, and so on.

In calculating net income subject to the surtax, all profits of companies earned but not distributed are included. Personal returns are required of all individuals having an income of over $3,000, unless the entire income is taxed at the source. Individuals subject to the additional tax, however, must report total income from all sources.

Collection at the Source.—The collection-at-the-source method of administration is one of the most important features of the law. It was estimated by the Committee on Ways and Means that two-thirds of the personal income-tax receipts would be deducted and withheld at the source. All persons or corporations paying to other persons income in the form of rent, interest, wages, etc., in excess of $3,000 must deduct the one per cent. tax and pay it over to the collector of internal revenue, reporting at the same time the name and address of the person for whom the return is made. Persons or corporations engaged in the business of collecting interest or dividends on foreign obligations not payable in the United States must obtain a license from the collector of internal revenue and be subject to regulations enabling him to verify the proper payment of taxes on such foreign securities.

American income taxes have heretofore made little use of the collection-at-the-source method. The Civil War Federal tax and state income taxes have, almost without exception, depended on the so-called "lump-sum" method. In England, however, stoppage at the source has long been employed with success. Conditions in the United States are peculiarly favorable to the use of this method, the business of the country being so largely in the hands of corporations and foreign investments so relatively unimportant. The objection that collection at the source would tend to deprive the taxpayer of the benefit of exemptions and deductions is met in the present law by providing for the filing of claims for exemption, either with the collector of internal revenue, or with the person or corporation required to withhold the tax.

The Corporation Tax.—The preliminary report of the Commissioner of Internal Revenue shows that the revenue from the excise tax on corporations for the fiscal year ended June 30, 1913, amounted to over $30,000,000, a gain of nearly $6,500,000 over 1912. A large amount of revenue was sacrificed and the corporation tax itself greatly weakened by a decision rendered on April 7 by the Supreme Court in the case of Mine Hill & Schuylkill Railroad Co. The Court held that corporations leasing their property and without income except that received from the lease were not "doing business" and therefore not liable to the excise tax. Any defect in the excise tax, however, can have no serious result, for it has been supplanted by the general income-tax law which applies to corporations, joint-stock companies, and associations, as well as to individuals. Partnerships are not required to make returns for the corporation tax, a partnership's profits being taxed as the personal income of its members, and to aid in reaching such income the Commissioner of Internal Revenue may require a statement of profit and the names of persons receiving it. The income tax is broader in its application than the excise tax. The latter applied only to corporations organized for profit and "doing business," while the new law makes none of these qualifications or exemptions. The rate remains the same as formerly, one per cent. of the net income. In calculating net income the law allows the deduction from gross income of all ordinary expenses incurred in the conduct of the business, as well as losses not covered by insurance, depreciation, interest accrued and paid, and taxes.

STATE AND LOCAL TAXATION

The legislatures of 42 states have held regular or special sessions during the year and in nearly all of them laws relating to taxation have been enacted, although many of the bills passed effect only minor changes in existing laws. Instead of reviewing this legislation state by state the more significant laws of the year will be summarized topically.

Classification of Property.—The most popular tax reform at the present time is the partial or complete exemption of intangible personalty. In many states, however, constitutional difficulties are encountered in any such attempt to depart from the general property tax. In a considerable number of states efforts are being made to remove the constitutional provisions requiring all property to be taxed at a uniform rate. In 1913 the legislatures of at least seven states initiated constitutional amendments to permit the classification of property. In Kansas, Nebraska, and Oregon the amendment is to be submitted for ratification at the general election in 1914; in Maine an amendment was adopted on Sept. 8; and in New Mexico and North Dakota the amendment was voted on at the general election Nov. 4, 1913, while Kentucky voted on Nov. 4 on an amendment passed in 1912. In Wisconsin the amendment proposed, which must be passed by another session of the legislature and then submitted to a referendum, authorizes counties, cities and other local divisions to exempt designated classes of property in whole or in part, though property exempted by counties must be included in the state assessment, while property exempted by other subdivisions must be included in both state and county taxes. In Oregon, Nebraska, and Kansas the amendment provides also for power to levy graduated and progressive income taxes. In Michigan, where classification was already constitutional, the legislature has levied (Act No. 142) a tax on secured debts, similar to the New York "secured-debt" tax. The law provides, in lieu of all other taxes, a specific tax of one-half of one per cent. on "secured debts," that is, bonds, notes or debts secured by mortgages on real property recorded in other states and countries. A recording tax for mortgages on property within the state was already in force.

In Iowa an amendment to be submitted at the general election in 1916 permits the selection of classes of property for exclusive taxation. The purpose is to effect a separation of sources of state and local revenue.

Classes of property selected for exclusive state taxation may not be taxed for county, township, or municipal purposes.

Minnesota has adopted a classification (Ch. 483) of property for still a different purpose. All real and personal property subject to the general property tax and not subject to the gross earnings tax is divided into four classes, and taxed as follows: (1) iron ore, mined and unmined, is to be taxed at 50 per cent. of its value; (2) household goods, wearing apparel, etc., at 25 per cent. of true value; (3) live stock, agricultural products, merchandise, manufacturers' materials and machinery and unplotted real estate at 33⅓ per cent. of true value; and (4) all other property at 40 per cent. of true value.

Exemption of Improvements.—Housing reformers and other social workers, single taxers, and, in some localities, the commercial and manufacturing interests, are advocating the exemption of improvements attached to real estate, a reform which has been widely adopted in the cities of northwestern Canada. To Pennsylvania belongs the distinction of being the first American state to experiment with this method of reducing rents and solving the housing problem. An amendment to the law governing second-class cities (Act No. 147), approved May 13, 1913, provides for separate assessment of land and buildings, with the gradual reduction of the tax on buildings to one-half of the rate on land in 1925 and thereafter. The act applies to Pittsburgh and Scranton.

An amendment designed to establish a single-tax system on land and franchise values was submitted in 1912 in Missouri and decisively defeated (*A. Y. B.*, 1912, p. 337). In 1913 an amendment providing that the power of initiative and referendum shall not be used to levy a single tax on land was approved.

Forest Taxation.—Particularly in the eastern states the question of forest taxation has received much attention in the last few years. A special commission on the taxation of woodland was appointed in Connecticut in 1911. Its very able report submitted to the General Assembly of 1913 was followed by the enactment of a law (Ch. 58) the main features of which are as follows. Woodland and land suitable for forest planting, not less than five acres in area and not exceeding in value $25 an acre, excluding standing timber, may, upon an application approved by the state forester, be given a special classification as forest land for the purposes of taxation. Land fully stocked with timber less than ten years old may be classed as forest land and taxed annually at the local rate, not to exceed ten mills, provided the kinds of trees and manner of planting are approved by the state forester. A tax of 10 per cent. is then levied on any forest products removed. When the timber is of more than 10 years' growth the land, when classified, is to be taxed at the local rate on the value at the time of classification (but not to exceed 10 mills). At the end of 50 years another classification has to be made. Timber cut on classified land, except for domestic use, is subject to a graduated tax beginning at two per cent. of the yield within 10 years after classification and rising to seven per cent. on all timber cut after 50 years from the date of classification.

A similar, though simpler, law has been enacted in Pennsylvania (No. 269). It provides that land to be classed as "auxiliary forest reserves" shall be valued for taxation not in excess of $1.00 per acre. When timber is cut the owner is required to pay a tax of 10 per cent. of the "value of the trees immediately at and before the time of harvesting." Should the lands be removed from the class of "auxiliary forest reserves" before the timber tax is paid, the owner must pay the full amount of taxes, with interest, which would have been due had the land not been placed in the reserve. By another act (No. 270) these "auxiliary forest reserves" are subject to a tax of two cents an acre each year for the benefit of the schools and the same amount for road purposes in the district where they are located.

A South Carolina act (No. 135), which appears to be primarily a revenue measure, requires all persons engaged in cutting timber for sale or

manufacture to report the amount and value cut, which is to be taxed as personal property. An interesting Wisconsin law (Ch. 740) permits specified forest reserve lands owned by the state to be assessed by the state tax commissioner and taxed for local purposes at a rate not to exceed one and one-fourth per cent. per annum. The Massachusetts legislature provided (Ch. 131) a commission on the taxation of wild or forest land to study the subject generally and report in January, 1914.

Taxation of Mineral Resources.—Pennsylvania has a monopoly of anthracite coal, but the supply is rapidly being exhausted and before it is gone it should, according to the report of a joint committee on tax laws, "be made to yield a revenue . . . which would leave behind a monument to the industry in the form of improved public facilities of every kind." This recommendation was embodied in an act (No. 374) which levies upon every ton of anthracite coal a tax of 2½ per cent. of its value as prepared for market, one-half of the revenue going to the counties in which it is collected. In Arizona the mining industry has been singled out for special taxation by an act approved May 17, 1913. The tax commission is required, on the basis of reports which must be made to it, and by elaborate methods laid down in the statute itself, to determine the money value and net proceeds of every mine in the state; upon the value so determined the same rate of taxation is levied as on other property. In Wisconsin an act (Ch. 367) was passed which is designed to discourage the reservation of mineral rights by other than the fee owners. Such rights are taxed separately and when sold for non-payment of taxes may be purchased only by the owner of the fee or by the state itself.

Railways and Other Corporations.—The most important corporation tax laws of the year were enacted in Connecticut, where a special commission on the subject presented a comprehensive report recommending a gross-receipts tax for all public-service corporations and suggesting changes of more or less importance touching financial corporations, banks and insurance companies. A law was passed (Ch. 188) taxing by the gross-earnings method express, telegraph, telephone, dining-car, sleeping-car, parlor-car, refrigerator and other car companies. The rate for express companies is two per cent., for telegraph and car companies three per cent., and for telephone companies four per cent. These gross-earnings taxes are in lieu of all others; local taxes on real estate used in the business may be deducted and stocks and bonds of the companies are exempt in the hands of holders.

Connecticut has also applied the gross-earnings tax to insurance companies organized under foreign governments (Ch. 26). The rate is two per cent. on gross premiums less return premiums including cancellations. Taxes paid to the state by reinsuring companies may also be deducted, not to exceed 20 per cent. In Arkansas a rate of 1½ per cent. of gross receipts is levied (Act 220) on life, health and accident insurance companies and bonding and surety companies, in lieu of all other taxes and license fees, state and local. Another Arkansas act (Act 159) levies a tax of 1½ per cent. on the gross premiums of fire, tornado and marine insurance companies, deduction of return premiums and authorized insurance being permitted. The act also levies a tax of five per cent. on the gross premiums of companies not authorized to do business in the state, while Arkansas companies are not permitted to deduct reinsurance in unauthorized companies.

Minnesota has applied the gross-earnings tax to trust companies (Ch. 529). The rate is five per cent. on gross earnings, in lieu of all other taxes. Companies receiving deposits subject to check, however, still pay taxes in the same way as banks. Wyoming continues the par-value tax (Ch. 94), but collects it now through the bank. Surplus and undivided profits are also subject to taxation when in excess of 50 per cent. of the capital stock, all real-estate taxes being deducted.

Minnesota has also (Ch. 480) levied a gross-earnings tax of five per cent. on express companies, interstate receipts being apportioned to the state

on a mileage basis. Express companies in Nebraska (Ch. 19) are subjected to a franchise tax, called an "annual occupation tax fee," of two per cent. on gross earnings within the state.

A number of states have just taken their first step away from the general property tax method of local assessment for corporations of all or certain specified kinds. An Arkansas act (No. 153) requires the tax commission to assess the personal property, which "shall be construed to include all intangible property of every kind," of power, heating, electric, gas, water, street-car, toll-road companies, etc., in the same manner as it now assesses railroads, sleeping-car, pipe-line, telephone, telegraph, and express companies. The state board of equalization of New Mexico (Ch. 81) is to fix the assessed valuation of the property of railway, express, telegraph, telephone and car companies. A concurrent resolution was adopted in North Dakota (Ch. 103), proposing an amendment to the constitution that would require the state board of equalization to assess the operating property of railroads, express, telegraph, telephone, freight-line and car companies.

Income Taxes.—Partly because of the pending Federal income tax measure, the 1913 state legislatures were not inclined to consider income taxes. In Colorado a bill was passed levying one-half of one per cent. on incomes of $5,000 to $10,000, and graduated up to two per cent. on all incomes above $20,000. Governor Ammons, however, vetoed the bill on the ground that the little revenue it could be counted on to produce would be distributed inequitably among the counties.

Wisconsin has not only not repealed her income tax law, as seemed likely a year ago, but has strengthened it in several ways. Chapter 720 of the laws of 1913 makes important changes in the direction of greater simplicity and administrative efficiency. The original income tax law defined bonds as an interest in the property and business of the company issuing such bonds and provided practically that the tax upon such bond interest should be paid by the corporation itself. This has been repealed and a limitation upon the interest deduction adopted similar to that found in the Federal special excise tax law. The method of calculating the rate on corporations, as well as the rate itself, has been changed materially. In the original law the rate applicable to corporations depended upon the ratio between the taxable income and the assessed value of the property from which the income was derived. This method of determining the rate proved cumbersome and difficult of administration and was replaced by a schedule of fixed rates which are practically double those imposed upon individuals. The rates for corporations now range from two per cent. on all taxable income up to $1,000 to six per cent. on all income in excess of $7,000. Another act (Ch. 554) repealed the exemption of interest "from bonds or other securities exempt from taxation under the laws of the the United States," as well as the salaries of United States officials. Income of banks and trust companies and personal incomes in the form of dividends of banks and trust companies are exempted (Ch. 615). This has the effect of placing banks with insurance companies and public utilities in a class of corporations exempt from income tax, but subject to the state ad valorem tax.

Inheritance Tax.—Several states have passed laws for the taxation of inheritances. An Arkansas act (Act 197) imposes a tax progressing from "primary rates" of one per cent. for direct heirs and three per cent. for all other, on taxable inheritances up to $5,000, to 24 per cent. on estates above $1,000,000 passing to collateral heirs or strangers. An exemption of $3,000 is allowed to a widow or a minor child, $1,000 to other direct heirs, and $500 to strangers and corporations.

A new California law (Ch. 595), repealing existing laws, allows the usual exemptions for charitable purposes, $24,000 to a widow or minor child, $10,000 to direct heirs, and $500 to strangers and corporations. The "primary" rates run from one per cent. to five per cent. on all taxable property up to $25,000, depending on the de-

gree of relationship. Estates in excess of $1,000,000 pay five times the primary rates plus five per cent. of the "clear market value"; a rate of 30 per cent. is thus possible on large estates. The proceeds of the tax up to $250,000 go to the state school fund and the balance into the general treasury.

Connecticut amended her inheritance tax law so as to abolish double taxation. Indiana enacted her first inheritance tax law (Ch. 47). The "primary" rates are one to five per cent. on taxable estates up to $25,000. Rates on the excess above $25,000, up to $500,000, vary from 1½ to three times the "primary" rates. Exemptions range from $10,000 allowed to a widow, down to $100 for collateral heirs and public or private corporations. The proceeds are paid into the state treasury for general state purposes. In Kansas the inheritance tax law was repealed (Ch. 30) with the intention of reënacting the tax on collateral inheritances. The new law, however, failed to pass the senate.

A North Dakota act (Ch. 185) establishes five classes of heirs, the rate for the first ranging from one to three per cent. and for the fifth 25 per cent. of the entire taxable estate. An exemption of $25,000 is allowed for husband or wife, $10,000 for father, mother or lineal descendant, $500 for brother, sister, etc. For other relatives and collateral heirs no exemption at all is permitted.

The Wisconsin inheritance tax law was amended (Ch. 763) along the line of taxing intangible property at the situs of the tangible. This method has been defended by a member of the Wisconsin state tax commission who declares that "we cannot permit all the property in the state, the mines and the railroads, to be turned into corporate form, the owners to move outside, and the inheritance taxes to go to that jurisdiction."

Tax Commissions.—Permanent tax commissions have been created in a number of states. A Florida commission (Ch. 6500) is composed of three members appointed by the governor with the consent of the senate for a term of four years at a salary of $4,000. Appointees are to be "known to possess knowledge on the subject of taxation and skill in matters pertaining thereto" and must devote their time to the duties of their office. Their duties are to exercise general supervision over the administration of tax laws, to investigate the methods and work of the local assessors, to study the tax systems of other states and countries, and to formulate and recommend legislation.

An Idaho act (Ch. 57) creates a state board of tax commissioners with duties similar to those prescribed in the Florida law. In Idaho, however, the commission is of the old *ex officio* type, and consists of the members of the Public Utilities Commission who are to use the same office and receive no additional salary. Fortunately, the board is allowed to employ experts.

The Montana legislature also created a tax commission (Ch. 75) largely *ex officio* in character, being composed of the governor, who is to act as chairman, the secretary of state, state treasurer, attorney-general, state auditor, and an expert in taxation, who is to be known as the state tax commissioner, and is required to give all his time to the duties of his office. The commissioner is appointed by the governor for a term of six years, is eligible for reappointment, receives a salary of $3,600 and has the same powers as the other members of the commission. The same act also creates county boards of appraisers, whose function is to value all real estate and other property, and for this purpose are required to "visit and inspect all real estate and stocks of merchandise" in the county. These boards consist of "three reputable citizens," one of whom must be a farmer, and another a merchant. The tax commissioner appoints the county boards and is *ex officio* a member of them all.

In New York the general appropriation act (Ch. 791) empowered the governor to appoint a commmission of five and a counsel to act with the state Board of Tax Commissioners in preparing a codification and revision of tax laws.

Centralization of Administration.—A certain degree of centralization of administration is aimed at by each of these newly created state boards and

commissions. Ohio already had a commission, created in 1910 (*A. Y. B.*, 1910, p. 332), but has in 1913 thoroughly reorganized her assessment methods, centralizing the tax machinery to an extent not attempted elsewhere. For the purpose of assessing real and personal property under the new law (House bill 571, approved May 6, 1913) the state is divided into assessment districts, each district consisting of a single county. For each district a deputy state tax commissioner is provided, to be known as district assessor, though counties having a population of over 65,000 are to have two deputy tax commissioners, constituting a "district board of assessors." District assessors are appointed by the governor and may be removed by the tax commission, with the consent of the governor. They appoint their own deputies. The act also creates a bipartisan "district board of complaints," consisting of three members appointed by the tax commissioner for a term of three years. Its duty is to hear grievances and review assessments.

Tax Maps.—New Jersey seeks to improve her assessments not by centralization of administration and appointment of assessors, but by providing tax maps. A commission to investigate assessment methods throughout the state was authorized in 1912. It submitted a report to the legislature in 1913 containing no less than 19 distinct recommendations, most of them being designed to promote efficiency and business-like methods by means of centralization of responsibility. The only recommendation adopted was the one calling for tax maps. The act (Ch. 175) requires all taxing districts to provide an accurate map, showing the location of all highways and parcels of land. For townships the law provides a method of preparing maps without making an actual survey, in case a township has none or is unwilling to go to the expense of preparing a surveyed map. All property is to be described on the tax list by the lot or block number or designation which appears on the map and such description is to be considered sufficient for purposes of taxation, although the approximate area and the name of the owner must accompany the map designation on township tax lists. The state board of equalization is given "full control over the preparation, maintenance, and revision of all tax maps however prepared."

Municipal Debt.—Following various investigations made by the Bureau of Statistics and two successive legislative committees, the Massachusetts legislature passed a law (Ch. 719) to restrict and regulate the municipal borrowing power. Charles F. Gettemy, Chief of the Bureau of Statistics, reported to the Senate in 1911 that in 15 cities and 156 towns examined there was a total of $1,124,231.98 of municipal indebtedness with no provision for meeting it. Wholesale and indiscriminate borrowing from trust funds and cemetery funds had plunged the cities and towns of the Commonwealth into hopeless confusion from which the legislature would have to rescue them. Mr. Gettemy intimated that there is a shadow of illegality resting upon some of the loans made apparently in accordance with the law. Borrowings amounting to nearly half a million had been made from trust funds left for town improvements, but appropriated by the towns for current expenses.

The principal evils to be eliminated by the new law were: (1) issuing bonds to meet current expenses; (2) unrestrained borrowing in anticipation of tax collections, the amount so borrowed sometimes even exceeding the tax collections of the year; (3) violation of trust funds; (4) uneconomical and wasteful management of sinking funds. To avoid the first evil, the new law, instead of attempting to define "current expenses," extends the list of purposes for which debt may be incurred, fixing in each case the maximum limit of time within which the debt must be paid, in no case exceeding 30 years. In the second place, the amount which can be borrowed in anticipation of taxes must not exceed the local tax levy, plus corporation tax receipts, of the preceding year, must be paid within the year and cannot be renewed. Thirdly, cities and towns which have used trust funds for general purposes are required (Ch. 634) to provide in the tax levy of 1914 for restoring

the funds; where this would not be possible they are allowed to borrow the necessary amount for a period not to exceed 15 years. Perhaps the most interesting feature of this important municipal indebtedness act is its prohibition of the creation of any further sinking funds. Those now established are to be continued, but in the future all debt payment is to be by the "serial payment" method, which has been optional with towns since 1882.

The law also provides that cities shall not authorize indebtedness to exceed 2½ per cent., nor towns to exceed three per cent., of the assessed valuation of property for the three preceding calendar years. Section 16 forbids any department of a city to incur liabilities in excess of the appropriation, except in case of "extreme emergency involving the health or safety of persons or property" and then only by a two-thirds vote of council, commission or selectmen. Section 20 provides a budget and prescribes the budgetary methods for all cities except Boston.

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BANKING AND CURRENCY

E. W. Kemmerer

THE MONETARY SYSTEM

Currency. — The character of the present monetary circulation of the United States and the changes which have occurred during the year are shown in the following table, based upon the figures of the Treasury Department:

Classification	Aug. 1, 1912		Aug. 1, 1913	
	Amount	Per Cent.	Amount	Per Cent.
Gold coin	$ 608,700,000	18.5	606,000,000	18.1
Gold certificates	946,100,000	28.9	$1,000,600,000	29.8
Silver dollars	70,500,000	2.1	72,200,000	2.1
Silver certificates	472,700,000	14.4	470,600,000	14.0
Subsidiary silver	145,100,000	4.4	155,400,000	4.6
Treasury notes of 1890	2,900,000	0.1	2,600,000	0.1
United States notes	338,200,000	10.2	338,600,000	10.1
National bank notes	702,200,000	21.4	710,900,000	21.2
Total	$3,286,400,000	100.0	$3,356,900,000	100.0

From Aug. 1, 1912, to Aug. 1, 1913, the per capita increase in the circulation was very slight, from $34.26 to $34.44. In these figures the most significant facts are that at the present time approximately half of our total circulation consists of gold (coin and certificates), and that the proportion of gold to the total circulation which began to increase a decade and a half ago continues to increase.

National Banking System.—There were in active operation on Oct. 31, 1913, 7,514 national banks, an increase of 86 since Oct. 31, 1912. The total number of new banks organized during this period was 172, made up of 37 conversions of state banks, 40 reorganizations, and 95 primary organizations. On the other hand, 86 banks went out of existence, five by failure and 81 by voluntary liquidation, leaving the net increase 86, as stated. This growth is 11 less than that of the preceding 12 months, during which the growth was 97 banks.

The circulating notes of national banks increased from $749,348,859 on Nov. 1, 1912, to $758,899,709 on Nov. 1, 1913, an increase of 1.27 per cent. as compared with 1.4 per cent. for the year ending Nov. 1, 1912.

The change in the number of national banks in operation in different sections was as follows:

Section	Oct. 31, 1912	Oct. 31, 1913	Change
New England	460	450	−10
Eastern states	1,654	1,660	+ 6
Southern states	1,492	1,523	+31
Middle states	2,055	2,069	+14
Western states	1,264	1,286	+22
Pacific states	499	521	+22
Island possessions	4	5	+ 1
Total, U. S.	7,428	7,514	+86

The development of the principal items of resources and liabilities of all national banks is shown in the following table, based upon the reports made to the Comptroller of the Currency. For Sept. 4, 1912, 7,397 banks reported, and for Aug. 9, 1913, 7,488 banks reported. All figures for amounts refer to millions of dollars.

	Sept. 4, 1912	Aug. 9, 1913	Change, Per Cent.
Total resources	$10,963.4	$10,876.8	− 0.8
Loans and discounts	6,040.8	6,168.5	+ 2.1
United States bonds	778.1	790.0	+ 0.1
Specie and legal tender notes	896.0	899.1	+ 0.0
Capital stock, surplus and undivided profits	1,989.7	2,041.2	+ 0.2
National bank notes outstanding	713.8	724.4	+ 0.2
Individual deposits	5,891.7	5,761.3	− 2.2
U. S. Government deposits	59.2	76.9	+30.0

State Banks.—The figures compiled by the Comptroller of the Currency show the following developments regarding the principal items of resources and liabilities of state banks for the year, all figures for amounts referring to millions of dollars. The number of state banks reporting to the Comptroller of the Currency was 13,381 in 1912 and 14,011 in 1913.

	June 14, 1912	June 4, 1913	Change, Per Cent.
Total resources	$3,897.8	$4,143.0	+6.3
Loans and discounts	2,549.3	2,746.6	+7.7
Cash in bank	241.8	246.2	+0.2
Capital, surplus and undivided profits	730.4	768.2	+5.2
Individual deposits	2,920.0	3,081.0	+5.5

Loan and Trust Companies.—For loan and trust companies the principal items of resources and liabilities for the dates covered by the Comptroller's figures for the years 1912 and 1913 are given below. All figures for amounts refer to millions of dollars. The number of loan and trust companies reporting was 1,410 in 1912 and 1,515 in 1913.

	June 14, 1912	June 4, 1913	Change, Per Cent.
Total resources	$5,107.4	$5,123.9	+0.3
Loans and discounts	2,711.2	2,767.3	+2.0
Cash in bank	282.2	285.3	+1.1
Capital, surplus and undivided profits	979.7	1,026.7	+4.8
Individual deposits	3,675.0	3,571.3	−2.8

Private Banks.—For private banks the Comptroller's figures show the following totals in millions of dollars. The number of private banks reporting in the years 1912 and 1913 respectively was 1,110 and 1,016.

	June 14, 1912	June 4, 1913	Change, Per Cent.
Total resources	$196.9	$182.7	− 7.2
Loans and discounts	129.8	124.2	− 4.3
Cash in bank	7.4	7.2	− 2.7
Capital, surplus and undivided profits	35.9	30.8	−14.2
Individual deposits	152.5	143.4	− 5.9

Savings Banks.—The principal items of the savings bank statistics of the United States as compiled by the Comptroller of the Currency for the past two years are given below. Amounts are given in millions of dollars. The number of mutal savings banks reporting decreased from 630 in 1912 to 623 in 1913, while the number of stock savings banks reporting increased from 1,292 in 1912 to 1,355 in 1913.

	June 14, 1912	June 4, 1913	Change, Per Cent.
MUTUAL SAVINGS BANKS:			
Total resources	$3,929.1	$4,104.6	+ 4.4
Loans and discounts	1,920.3	2,038.9	+ 6.2
Bonds, securities, etc	1,778.0	1,818.6	+ 2.3
Cash in bank	16.2	17.1	+ 5.5
Surplus and undivided profits	315.4	330.1	+ 4.7
Individual deposits	3,608.7	3,769.5	+ 4.4
STOCK SAVINGS BANKS:			
Total resources	$ 993.6	$1,120.8	+12.8
Loans and discounts	669.2	787.5	+17.6
Bonds, securities, etc	144.9	146.5	+ 1.1
Cash in bank	29.3	35.6	+21.5
Capital, surplus and undivided profits	131.1	144.9	+10.5
Individual deposits	842.9	956.9	+13.5

The geographical distribution of savings banks (both mutual and stock) with the number of depositors, the amount of deposits, and the average to each depositor, on June 4, 1913, as compiled by the Comptroller of the Currency, is shown in the following table:

Section	Number of Banks	Number of Depositors	Amount of Deposits	Average to Each Depositor
New England states	413	3,572,128	$1,489,835,704.36	$417.07
Eastern states	243	4,333,608	2,161,418,548.62	498.76
Southern states	193	490,318	96,564,206.87	196.94
Middle Western states	891	1,337,783	482,051,614.21	360.34
Western states	58	68,622	16,068,015.08	234.15
Pacific states	180	964,477	481,465,861.65	499.20
Total, U. S	1,978	10,766,936	$4,727,403,950.79	$439.07

Banking Power of the United States.—Bringing together all the banking institutions of the United States which reported to the Comptroller of the Currency for the call of June 4, 1913, numbering 25,993 banks, we find the aggregate amounts of their principal items of resources and liabilities to be as follows, in millions of dollars:

Total resources	$25,712.1
Loans and discounts	14,626.7
Bonds, securities, etc	5,407.2
Cash in bank	1,560.7
Capital, surplus and undivided profits	4,346.6
Individual deposits	17,475.7

The figure for deposits is exclusive of United States deposits, $49,725,039, and postal-savings deposits, $25,242,-015.

There were in addition about 3,261 banks, chiefly brokerage concerns, with aggregate capital estimated at $65,000,000, from which the Comptroller of the Currency was unable to obtain reports.

BANK EXAMINATION AND REGULATION

National Banks.—Comptroller of the Currency Lawrence O. Murray continued up to the time of his resignation on April 26 the important plans he had been carrying out for several years, for making more effective the bank-examining work of the Comptroller's office, and for bringing about coöperation between the examiners of the national and of the state governments. In March he began an organized effort through bank examiners to stop the practice of paying dividends out of surplus when the surplus is less than 20 per cent. of the capital, the percentage of surplus which banks are required by the National Banking Act to accumulate. For some time previous the Comptroller Murray in April the office has secure improvement in the examinations of national banks made by their own directors; and on Feb. 4 he issued a statement that:

> It has always been claimed that the directors' examinations were inefficient, for the reason that the men who constitute the boards in country banks, outside of the officers, were not usually capable of accurately examining the bank's affairs outside of counting the cash and examining the loans and discounts. This is not now the case. As a result of the campaign of education carried on by the Comptroller's office during the last year, more than 90 per cent. of the reports now being received are found to cover practically every essential point in the bank's examination, and the percentage of satisfactory reports is becoming greater every day.

Since the resignation of Comptroller Murray in April the office has been in charge of Acting Comptroller Thomas P. Kane.

State Banks.—The movement for more efficient supervision of state banking institutions has continued throughout the year. A decision in the Court of Chancery at Montgomery, Ala., establishes the right of the state Superintendent of Banking to take over the assets of insolvent banks and to institute suits in conducting their liquidation. A new banking code enacted in Colorado gives greatly increased powers to the state Banking Commission. Indiana passed a law on May 13, increasing from two to five the number of reports required to be made each year by trust companies to the state Banking Depart-

ment. A New York statute enacted on May 9 requires directors of state banks and trust companies to examine twice a year into the loans and discounts made to officers or directors or for the benefit of such officials or other organizations in which they have a beneficial interest. A statement of such liabilities must be filed with the state Banking Department. On May 14 a law was passed in New York authorizing the superintendent of banks to require any bank or banker to open and keep books in the form the superintendent of banks may require to enable him to ascertain the true condition of the bank. The state of Washington enacted a considerable amount of banking legislation during the year, among the acts a law placing private banks under the supervision of the state Banking Department.

State Legislation.—Of the mass of banking legislation of the states in 1913 the more important acts may be briefly summarized. An Alabama act of March 13 requires trust companies to keep a 15 per cent. reserve in cash against commercial deposits. New York (April 18) reduced the minimum capital and surplus required of trust companies having the privilege of operating branches outside of the state from $5,000,000 to $2,000,000. It also (Ch. 670) prohibited any corporation from directly or indirectly making loans for the purpose of enabling the borrower to pay for or hold shares of its capital stock, unless the loan is made upon security worth at least 15 per cent. more than the amount of the loan. In his annual report of Dec. 31, 1912, the state superintendent of banks in New York recommended that on account of its many incongruities, obsolete provisions, and ambiguities, the entire banking law of New York state should be rewritten by a commission of experts to be appointed by the governor. An act providing for such a commission was passed on May 26. A commission of 13 members, of which A. Barton Hepburn is chairman, has been appointed and will submit its report in February, 1914. Oklahoma, in addition to making certain changes in its deposit-guaranty law, passed a law prohibiting bank officers from lending money to companies in which they are interested, except on the written authority of a majority of the board of directors. An interesting innovation is made in the recently enacted Tennessee banking law according to which the governor selects the superintendent of banks from a list of five names submitted by the Tennessee Bankers' Association. Among the numerous acts relating to banking passed by the state of Washington, to which reference has been made above, may be cited an act punishing the making of derogatory statements concerning banks, and an act authorizing cities of the first class to put up securities instead of a surety bond for municipal deposits.

Uniform State Laws.—During the year 42 state legislatures were in session, and this fact, together with the activity of such organizations as the American Bankers' Association and the American Bar Association, has resulted in considerable progress in the line of uniformity of legislation in such matters as negotiable instruments, bills of lading, warehouse receipts, and the like.

The Uniform Negotiable Instruments Act was passed during the year by five more states, namely, Arkansas, Maryland, Minnesota, South Dakota and Vermont. It is now the law in every state of the Union except six, California, Georgia, Maine, Mississippi, South Carolina and Texas.

Up to the close of the year 1912 the Uniform Bills of Lading Act had been passed in 10 states. During the year 1913 but one state, New Jersey, passed the Act, although in several states a bill passed one house of the legislature.

At the opening of the special session of the Sixty-third Congress Senator Pomerene reintroduced with a few changes his bill relating to bills of lading in interstate and foreign commerce (*A. Y. B.*, 1912, p. 350). Owing, however, to the fact that the attention of the Senate was almost entirely absorbed during the special session with tariff and currency legislation the consideration of the bill had to be postponed until the regular session.

The uniform act to punish false statements for credit was passed in

five states, Delaware, Indiana, Maine, Utah and Vermont, and, with some changes, in a sixth state, Massachusetts.

Four states, Connecticut, Oregon, Ohio and Washington, passed the uniform act to punish derogatory statements affecting banks.

A summary statement of the progress during the year of other uniform bills relating to banking matters will be found in the report of the Law Committee of the American Bankers' Association in the American Bankers' Convention section of the *Commercial and Financial Chronicle* for Oct. 18, 1913 (pp. 130-135).

THE FEDERAL RESERVE ACT

Defects of the Banking System.—The year 1913 has been one of great activity in the field of banking reform, and this activity has centered about the Owen-Glass Currency bill, the history of which is treated elsewhere in this volume (see I, *American History*). Here will be discussed a few of the most salient features of the bill, with particular reference to their probable influence upon the future of American banking.

The chief defects of our American banking system are generally recognized to be: (1) extreme decentralization, a defect which finds expression largely in scattered and immobile reserves; (2) inelasticity of bank credit, both deposit and bank-note; (3) wasteful and unscientific method of caring for public funds.

Decentralization and Immobility of Reserves.—We have in this country upwards of 30,000 independent banking establishments, of which approximately 7,500 are national banks, approximately 4,000 are private banking concerns, and the remainder are state institutions, either commercial banks, trust companies or savings banks under state charters. These banks are owned largely by the residents of the communities in which they are located, and the business of most of them is chiefly local in character. Recently, however, as a result of the growth of the activities of bill-brokerage houses, local banks have been resorting in an increasing degree to out-of-town business. Except for the rather loose association of the banks in the clearing houses of our principal cities and for a growing community of interest, these banks may be considered as independent units each working for itself. There is little team work. In times of threatened panic the different parts of the system work at cross purposes and without leadership. Bank reserves are widely scattered and jealously held instead of being centralized and quickly applied where most needed, as is done in France, Germany and England.

This defect the Federal Reserve Act proposes to remedy through the establishment of a number of regional banks known as Federal reserve banks, each of which will be owned by the national banks of its district and by such qualified state banks as choose to join. The regional banks will hold a large part of the reserve money of member banks, and deposits by the member banks with the regional banks will be counted up to a certain limit as legal reserve money. After a transition period is passed, during which a declining percentage of reserve money can be held with reserve and central-reserve city national banks, all legal reserve money must consist of cash on hand and on deposit with the regional bank of the district. A substantial part of the reserve money of the country will thus be collected in these large reservoirs, and will be so mobilized as to enable a large part of the banking strength of the entire district to be directed to the places where most needed. These regional banks will in turn be connected with each other through the Federal Reserve Board, and the reserves of the different regional banks can be piped together in times of emergency. The act will undoubtedly go a long way in the direction of mobilizing our reserve money and of rendering possible effective coöperation among banks in times of emergency.

Inelasticity of Bank Credit.—The second fundamental defect of our banking system is the inelasticity of bank credit, not only bank-note credit, but deposit credit as well. Our bond-secured bank notes are notoriously inelastic. Their circulation responds to variations in the prices of

United States bonds rather than to variations in the demands of trade. When the price of Government bonds declines, as happened for example in the period 1889 to 1896, the circulation of the bond-secured national bank notes tends to increase, although this is very liable to be a time when business is slack and the currency is redundant. On the other hand, when the price of Government bonds rises, as in the period 1881 to 1889, the profits on bank-note circulation decline, and the circulation is reduced, although this is very liable to be a time when business is calling for an increased amount of currency.

Our loan and deposit credit is also lacking in the quality of elasticity. American commercial paper is essentially local paper. There is little paper in this country which can properly be termed bank paper with a broad discount market such as is found in abundance in most European countries. The National Banking Act as interpreted by the courts prevents national banks from accepting time bills drawn upon them. The business public looks with disapproval upon the rediscounting of its paper by banks, and there is no great bank in the country like the central banks of Europe that stands always ready to rediscount high-grade commercial paper on demand. When we add to these facts the rigid nature of our legal reserve requirements, the strongly seasonal character of the demands for currency and credit in our great agricultural industry, the dangerous method by which we pyramid our bank reserves, and the extensive investment of volatile deposits of reserve money in call loans, we see that the United States is at once a country where elasticity of bank credit is particularly important and peculiarly lacking.

One of the great merits of the Federal Reserve Act is that it provides the mechanism for bringing about this much needed elasticity. The act will substitute an elastic asset bank-note currency for the present inelastic bond-secured currency. It provides for the retirement of the national bank notes by the end of 20 years, and for the permissive retirement in the interim of five per cent. a year of those now outstanding. In their place the act authorizes an asset bank-note currency called "Federal reserve notes." These notes may be issued by the Federal Reserve Board to the regional banks only on the application of the latter and against the pledge of their full value in high-grade commercial paper. The notes will be thoroughly well secured by the high character of the assets back of them and by what amounts to a Government guaranty. Adequate provision is made for their prompt convertibility throughout the country. The notes will be elastic because they can be issued only when demanded by the commercial needs of the country as expressed in rediscounts with the regional banks, and because there is provided an effective mechanism to enforce their retirement as soon as they are not needed.

More important even than the provisions of the bill for an elastic bank-note credit are those for an elastic deposit credit, since upwards of 80 per cent. of the country's business is performed by deposit credit through the instrumentality of checks. A greater elasticity of deposit credit the Act proposes to secure chiefly in three ways. (1) Less rigid reserve requirements; the Act requires the Federal Reserve Board to establish a graduated tax upon the amounts by which the reserves against deposits may be permitted to fall below a specified level; and, in order to meet great emergencies, it authorizes the Board "to suspend for a period not exceeding 30 days, and from time to time to renew such suspension for periods not exceeding 15 days, any reserve requirement specified" in the Act. (2) Bank acceptances; by authorizing banks to accept certain classes of time bills drawn upon them the Act makes it possible for a bank with good credit to loan that credit through assuming a contingent liability on commercial paper, thereby giving the paper a much wider marketability. (3) Rediscount privileges; under the privilege of rediscount which the regional banks will extend to member banks, and the privilege of counting deposits with regional banks as reserve money, a member bank with rediscountable commercial

paper will always have the means of strengthening its reserves in time of need.

Here we have a mechanism well calculated to develop gradually a great national discount market for commercial paper, make relatively less important speculative call loans as a bank asset, and lessen in the future the probabilities of financial panics.

Wasteful and Unscientific Method of Caring for Public Funds.—Under our present laws United States Government funds may be kept either in national banks designated for that purpose by the Secretary of the Treasury, or in the various sub-treasuries, of which there are nine. The apportionment of the funds, on the one hand, between the sub-treasuries and the banks, and, on the other hand, among the banks themselves, is left to the discretion of the Secretary of the Treasury, subject only to the provision (Rev. Stat. 5153) that "the Secretary of the Treasury shall distribute the deposits as far as practicable, equitably between the different states and sections."

The evils of this system which the Federal Reserve Act seeks to correct may be briefly summarized as follows: (1) the continual hoarding in treasury vaults of sums ranging from something like 50 million to 150 million dollars, involving an annual loss to the public of the interest upon these vast hoardings, in addition to the expenses of administration; (2) disturbances in the money market affecting interest rates and prices which frequently arise from variations in the net receipts or disbursements of the independent treasury; (3) the onerous task imposed upon the Secretary of the Treasury of apportioning Government funds between independent treasury and banks and among the banks themselves, a task which places a great power and responsibility over the money market in the hands of an appointive Government officer; (4) the practice of banks of leaning upon the Government for aid in the form of additional Government deposits in times of pressure instead of depending upon themselves.

The Federal Reserve Act eliminates most of these evils at a stroke by providing (Section 15) that "the moneys held in the general fund of the Treasury, except the five per centum fund for the redemption of outstanding national bank-notes, may . . . be deposited in Federal reserve banks, which banks shall act as fiscal agents of the United States, and the revenues of the Government or any part thereof may be deposited in such banks, and disbursements may be made by checks drawn against such deposits." Under the new plan the Secretary of the Treasury is still given large power and responsibility in apportioning Government funds among the different regional banks.

It will doubtless require considerable time for the new plan to be put into full operation. To be thoroughly effective it will require many important changes in our present banking practices, as for example, a more favorable attitude on the part of business men and banks toward the rediscounting of commercial paper, the development of the use of bank acceptances, an increasing resort on the part of banks to commercial bills and notes as a form of investment, and a decline in the proportion of bank assets invested in stocks and bonds, and in paper secured by stocks and bonds. Ultimately the Act will cause the development in this country of a broad discount market similar to those of the chief European countries, and a much larger proportion of our best commercial paper will become national and even international in its marketability.

POSTAL SAVINGS SYSTEM

The postal savings system inaugurated in 1911 has continued to prosper during the year. By the end of the fiscal year 1913 postal savings facilities had been extended to 12,151 post offices and to 667 branches and stations. All Presidential offices are now savings depositories, also approximately 4,000 offices of the fourth class. Recently the system was extended to Hawaii, where it will be remembered a postal savings-bank system existed from 1886 to 1900 which was discontinued by the United States at the time of annexation.

In an address before the annual convention of the American Bankers'

Association at Boston on Oct. 7, Carter B. Keene, Director of the Postal Savings System, summarized its development in the following language:

> On June 30 last, the end of the fiscal year, we had on deposit, in round numbers, $33,800,000, standing to the credit of 338,000 depositors. Nor is this all, for $3,500,000 has been drawn from postal savings depositories for the purchase of Government bonds. . . . A large percentage of the postal savings depositors are in cities or in communities where the larger industries are carried on chiefly by foreign or transient labor. Sixty-five per cent. of the savings depositors in New York City are foreign born, and 82 per cent. of the deposits belong to them. Two-thirds of the depositors at Butte, Mont., are foreign born, and three-fourths of the deposits are in their names. One-half of the depositors in Chicago are foreign born, and to their credit stand three-fourths of the deposits. . . . The prediction that the postal savings system would keep on this side of the Atlantic enormous sums which had hitherto gone abroad has been fulfilled.

INSURANCE

LIFE INSURANCE

WENDELL M. STRONG

General.—The history of life insurance in 1913 has been one of satisfactory and not very eventful progress, interfered with somewhat by the financial depression that has existed during the greater part of the year. While statistics are not available till some time after the end of the year, it is known that, though some of the largest companies will show increases in the amount of new business, many companies will fall short of the previous year, and it is doubtful if the total new business will show much if any increase. A result, however, as good as is now indicated, may properly be regarded as very favorable for a year in which there has been such great caution in all kinds of commitments.

The straitened financial condition, and the need for ready money, has been seen in the rapid increase in loans on policies during the year. While in recent years each year has seen a large increase, in almost all companies, of the policy loans over the previous year, the increase during 1913 has been at a considerably more rapid rate than in the years preceding. As was explained at some length in the YEAR BOOK for 1912 (p. 353), the ultimate effect of policy loans is apt to be, after a few years, the surrender of the policy. In consequence, an increase in loans such as that taking place during 1913 is positively detrimental, and will mean more surrenders in later years.

For several years some of the insurance commissioners have held that the promising in the policy contract of the right to obtain loan or surrender values, practically on demand, constitutes a danger to the company in times of financial depression or panic. Minnesota and Connecticut have now passed statutes requiring that policies shall reserve to the insurance companies the right to defer the making of any loan or paying of any cash surrender value 60 days or more from the date of application. Such a statute indicates a striking contrast in the present attitude to that of six or seven years ago, when statutes were multiplied requiring the companies to give surrender values and loans nearly up to the full reserve. It indicates a realization that the guaranty of too great surrender and loan privileges to the policyholders may be against the best interests of the policyholders as a whole.

If we turn to the statistics given on a subsequent page, ending with those for the year 1912, we find that the totals under every one of the headings have increased in each year from the preceding year, and we further find that, in general, the progress has been quite uniform. If the statistics for 1913 were available, we should undoubtedly find the tendencies very much the same, except as modified somewhat by the effect of the financial depression of the year.

Income Tax.—The income tax as applied to the incomes of life-insurance companies will not differ greatly in its effect from the corporation tax and is, on the whole perhaps, more favorable to them. As regards the payments by the companies on account of policies the bill, as finally passed, makes practically all these exempt from the tax. Under the first

draft of the bill, however, it appeared as if nearly all such payments, even the payment of the amount of the policy to the beneficiary on the death of the insured, would be taxed as part of the income of the payee, and it was only after strenuous protests from the companies, and more particularly from the policyholders, that this was changed.

State Insurance.—In 1911 the state of Wisconsin started a scheme of state insurance, as explained in the YEAR BOOK for 1912 (p. 355). The 200 applications for insurance required before policies could be issued were not obtained until October, 1913, so that the real operation of the scheme is just begun. The exponents of the scheme believe that the savings in agents' commissions and in the salaries of officers will give cheap insurance. As tending to prevent this result are: (1) the probability of a high mortality because of a lack of special training of the medical examiners and of the officers who pass on the desirability of the risks, and because of the poorer average of the risks who seek insurance themselves as compared with those induced to apply by agents' efforts; and (2) the probability, if no agents are employed, of an amount of business too small to be conducted economically. This latter probability is now emphasized by the length of time it has taken to obtain a few applications, notwithstanding the great amount of free advertising the scheme has received through the press.

Mortality Investigation.—A great mortality investigation is now in progress, and some of its fruits are shown in the publication of the first three volumes of results. It is the Medico-Actuarial Investigation, undertaken jointly by the Association of Life Insurance Medical Directors and the Actuarial Society of America. Until recent years, important mortality investigations have been for the purpose of forming mortality tables. Quite recently it has been recognized that the greatest progress was to be obtained, for the present at least, by special investigations, such as the mortality of different selected classes and the effect of different influences, rather than by forming new general mortality tables in which all classes of insured lives were combined. In 1903 the results of the Specialized Investigation, a large and important investigation along similar lines by the Actuarial Society of America, were published. The present investigation is of even greater scope than the Specialized Investigation and is participated in by 43 companies of the United States and Canada, including practically all of the important companies of b o t h countries. While the general mortality of the companies participating has been obtained, to a certain extent, in order to have the appropriate standard with which to compare the mortality in special classes, no general mortality table is to be formed. Some idea of the scope of the investigation will be seen from an enumeration of a few of the subjects and classes investigated, such as weight with reference to height and age, causes of death, overweights, underweights, large men, small men, married women, unmarried women, family history of tuberculosis, different classes of miners, different classes of employees in the iron business, and different races.

Group Insurance.—One of the new departures has been the active taking up of group insurance by several prominent companies. Under this scheme a homogeneous group, such, for instance, as the employees of a department store, are all insured without medical examination, the rate charged not being necessarily the same as that where medical examination is furnished. The theory on which insurance is thus given without medical examination is that where all the persons of a group are insured, particularly of a group employed actively, the company will get risks of which the average is at least as good as the average of population and probably better, since all these persons are in sufficiently good health to fulfill the conditions of their employment in active service. It is not at all the same as offering, generally, insurance without medical examination, because it does not give the opportunity of selection against the company. The taking up of group insurance in this way has aroused considerable opposition in fraternal in-

surance circles, where it seems to be regarded as a trespassing on the ground of fraternal societies.

Dividends.—One of the most satisfactory features of the healthful developments of insurance since 1906 is the increase in the annual dividends to policyholders. For several years the dividends advanced rapidly in amount until a high level was reached and this level is being maintained. The total amount of dividends paid to policyholders has shown an even greater increase than the amounts of the individual dividends themselves, due largely to the fact that a much greater number of deferred-dividend policies are coming to the end of the dividend period now than six or seven years ago. It is probable that in 1913 the total dividends to policyholders have been in the neighborhood of $95,000,000 for companies reporting to the state of New York, considerably more than twice the amount paid in 1907.

The old rivalry between companies for amount of new business, resulting in excessive commissions to attract agents, has been changed largely to a rivalry as to which can show the best returns in dividends to its policyholders, and, consequently, the lowest actual cost of insurance. The disadvantages and dangers of the old rivalry are too well known to require comment; the rivalry in the matter of dividend payments also is not without its danger. That danger is the same that occurs in all lines of business—the temptation to pay larger dividends than the company can afford. With the present state supervision and statutory requirements, this is hardly likely to be serious, but might easily result in keeping surplus or contingent guarantee funds down to a lower point than they should be, and thus threaten, not the solvency, but the best success of the company.

Problems.—The chief problem confronting insurance companies at the present time, and which is likely to be a continuing problem, is the one referred to at length in the YEAR BOOK for 1912 (p. 353), that of loans, to which, perhaps, we should add, that of surrenders and lapses. The surrenders and lapses we may consider to a large extent wastage in life insurance, and the objection to policy loans is the extent to which they contribute to later surrenders by the loading up of the insured with interest in addition to his premiums, perhaps in order to obtain money for some far from necessary expenditure. When we speak of the surrender or lapse of policies as resulting in most of the wastage in the business, it must be remembered that a large part of the expense that the policy causes comes in the first year, and nearly all in the first few years; consequently, if a policy is taken out and carried a few years, and then lapsed or surrendered, this policy has caused very nearly as much expense as it would were it kept in force for many years, and for this, of course, the policyholder must in some way pay. A scrutiny of the two columns of surrenders and lapses for companies reporting to the state of New York in the table below gives an idea what a tremendous waste there is. Some part of the surrenders is doubtless necessary, because of financial inability to continue the policy or because the object for which the policy was taken out no longer exists. A much larger part of the surrenders, however, undoubtedly comes either from the piling up of loans on the policies or from the direct attraction of the high surrender values now given by all companies.

Taxation.—One of the difficulties with which life insurance has to contend is that it is not generally realized that participating insurance is in its essence a coöperative scheme of obtaining insurance at cost; this is true in the well-conducted stock companies which issue participating insurance as well as in the mutual companies. As a result, undoubtedly, of such misunderstanding, all companies are taxed by the different states on their premium receipts, apparently on the theory that the tax thus paid comes out of the profits of a big corporation. On the contrary, it comes directly from the policyholders. Provision for dependents is really philanthropic in its nature, and should have the utmost support and encouragement from the state, which otherwise might frequently have to provide by

state charity for those dependents. In England this is recognized by the specific allowance of amounts paid for insurance as a deduction from taxable income. The various states of this country, on the contrary, tax the insured for the right to make a philanthropic use of the amount he pays for insurance, taking, on an average, more than $1.50 out of every $100 thus paid. Considerable publicity has been given to the illogical nature and inconsistency of such taxes, but so far without producing any likelihood of their being repealed by the various states which have imposed them.

Statistics.—Tables of statistics for 1912 and previous years are given below. The most striking thing about these statistics is the magnitude of the amounts of insurance and other amounts involved, these being so large that in order to have the table a convenient size it is necessary to give results to millions only, and the steady increase in these amounts from year to year. The statistics here given are taken from the *Insurance Year Book*.

STATISTICS OF LIFE INSURANCE
(United States Companies)

Year	Number of Companies	End of Year: Admitted Assets[2] (millions)	End of Year: Surplus[1] (millions)	Premiums Received[2] (millions)	Total Income[3] (millions)	Total Payments to Policyholders[3] (millions)	Total Disbursements[3] (millions)	New Business[3] (millions)	Amount in Force at End of Year[3] (millions)
1912	248	$4,407	$621	$672	$893	$447	$628	$2,405	$15,559
1911	239	4,163	603	632	834	414	569	2,101	14,577
1910	211	3,874	557	593	779	387	540	1,846	13,233
1909	189	3,643	545	565	748	360	505	1,694	12,513
1908	161	3,399	484	545	704	336	468	1,481	11,873
1907	156	3,065	344	532	678	304	439	1,363	11,504

[1] Includes amounts set apart for payment of dividends to policyholders during following year.
[2] Includes industrial business in 31 companies.
[3] Does not include industrial business.

SURRENDERS, LAPSES, LOANS AND DIVIDENDS
(Life Companies Reporting to State of New York Only)

Year	Number of Companies	Amount in Force End of Year (millions)	Amount of Policies Surrendered (millions)	Amount of Policies Lapsed (millions)	Policy Loans End of Year (millions)	Dividends to Policyholders (millions)	Amount Paid for Surrendered Policies (millions)
1912	34	$13,527	$276	$366	$548	$88	$84
1911	34	12,802	252	325	507	80	75
1910	33	11,669	236	277	465	72	72
1909	35	11,110	250	270	420	62	73
1908	35	10,623	250	314	390	52	71
1907	37	10,404	213	307	326	45	55

Industrial Insurance.—The statistics for this form of insurance, so important to the working classes, show a steady growth from year to year in amount of new insurance issued, insurance in force, and losses paid, each of which is for the year 1912 in the neighborhood of 50 per cent. greater than in 1907. Beyond this steady progress leading to the enormous amounts shown in the table below, made up mostly from policies of not over $100 or $200 each, there are no important facts to mention.

INDUSTRIAL INSURANCE
(United States Companies)

Year	Number of Companies	New Business (millions)	Insurance in Force at End of Year		Premiums Received (millions)	Losses Paid (millions)
			Number of Policies (millions)	Amount (millions)		
1912	31	$840	26	$3,707	$199	$53
1911	32	785	24	3,423	183	50
1910	22	749	23	3,179	171	47
1909	22	806	21	2,967	157	42
1908	20	606	19	2,668	144	39
1907	18	575	18	2,576	139	38

Fraternal Insurance.—An important event in fraternal insurance is the consolidation of the two great associations, the National Fraternal Congress and the Associated Fraternities of America. The former and larger of these associations was organized some years ago, the membership consisting of practically all the older and larger fraternal orders. The latter is a more recent organization and is composed of the newer and smaller orders. For some years there has been considerable rivalry between these associations growing out of the supposed conflicting interests of the new and the old, but the necessity for the adoption of more nearly adequate rates by fraternal societies has brought them together.

The consolidated organization is enlisted in the support of the "Mobile bill." The history of fraternal insurance for the last year or two largely centers around this bill. In its original form it provided for a valuation in 1917 and the gradual making up from then of whatever deficit then appeared in the assets as compared with the necessary reserve, thus requiring, from that time at least, the charging of adequate rates. In its original form it was adopted by a number of states. The requirements of this form, however, seemed too severe for many of the orders, and in consequence a modification of the form has been adopted which, while striving for the same general object makes much less rigorous demands but will, nevertheless, result in much more nearly adequate rates than the present, and put the societies on a better basis. In general it may be said that the bill has now the support of all the leading orders and the united approval of the insurance commissioners. Either in its original form or as modified, the bill has been enacted by 23 states and by reason of official rulings the principles of the bill are supported and virtually enforced in a total of 34 states. In accordance with the provisions of this bill a valuation of assets and liabilities was submitted for Dec. 31, 1912. This shows a great deficit in the assets of most of the organizations compared with the assets they should have.

Only a few of the societies have, as yet, undertaken to establish adequate premiums, which, of necessity, will be much larger than the former assessment rates. As anticipated, wherever the adoption of increased rates has been undertaken it has resulted in much dissatisfaction and considerable loss of membership. The Modern Woodmen of America, as the largest and one of the oldest of the orders, was cited an illustration in the Year Book for 1912 (p. 355). It adopted increased rates to be applied to old members beginning with 1913, but an injunction was obtained in Illinois, its home state, prohibiting the enforcement of the new rates and contributions have been continued on the old basis to await the result of an appeal. Nevertheless the mere agitation of the question resulted in a large loss in membership. Although $42,225,000 new insurance was issued during 1912 the net loss for the year in business in force was $317,435,000.

While comparatively few of the fraternal orders are, as yet, under-

taking to increase their rates, the accompanying statistics for 1912 show a large loss of business in force at the end of the year as compared with 1911. The importance of the fraternal orders may best be seen, by comparing the figures of new business and amount of business in force with those of the life-insurance companies, the figures for new business being about one-half and the figures for business in force nearly two-thirds of the corresponding figures for the life-insurance companies.

FRATERNAL INSURANCE
(United States Orders)

Year	Number of Orders	Assessments (millions)	Total Income (millions)	Claims Paid (millions)	Total Disbursements (millions)	Assets, End of Year (millions)	New Business (millions)	Number of Certificates in Force, End of Year (millions)	Amount in Force, End of Year (millions)
1912	397	$123	$132	$95	$114	$163	$1,023[1]	9[1]	$9,472
1911	396	117	130	84	113	148	1,200	10	9,839
1910	497	114	128	92	110	129	1,331	8	9,562
1909	645	82	120	89	104	117	1,203	7	8,920
1908	547	104	115	84	98	104	1,120	7	8,438
1907	543	98	116	81	96	85	1,212	7	8,079

[1] Decrease as compared with 1911 is partly due to incomplete figures from some of the orders.

PROPERTY AND CASUALTY INSURANCE

S. S. Huebner

Fire and Marine Insurance.—A normal growth in the volume of fire insurance can be reported for the year 1912. The 1913 issue of the *Insurance Year Book* furnishes a compilation of data for the same number of fire, fire-marine and marine companies and Lloyds organizations as in the preceding year, namely, 621. The total risks covered by these companies during 1912 amounted to $48,840,386,151, and increase of $2,503,393,501 over 1911 and $5,716,000,000 over 1910. Net premiums aggregated $371,626,000, or over $13,000,000 in excess of those received during 1911, while those of 1911 exceeded those of 1910 by only $6,187,000. Total income amounted to $410,760,000, or $17,794,000 more than in 1911. Paid-for losses, on the other hand, stood at $190,073,000, or only $5,156,000 in excess of the preceding year, whereas during 1911 there was an increase of $16,544,000 over 1910. Paid-for expenses also increased during 1912 by $5,264,000. Thus, as regards underwriting profits, the showing for 1912 is considerably more favorable than for either of the two preceding years. This more favorable showing, however, is not reflected in the aggregate dividends paid, which were nearly $1,000,000 less than in 1911, and over $3,000,000 less than in 1910. On the other hand, the companies increased their total assets during 1912 by over $30,000,000, and their surplus by nearly $10,000,000.

An examination of the summary of the business of 234 fire, fire-marine and marine companies doing business in New York, as furnished in the last annual report of the New York State Insurance Department, shows an increase of $51,517,662 in admitted assets as compared with the returns of 1911, and an increase of $27,477,920 in income and of $23,944,413 in disbursements; it should be noted, however, that 21 more companies reported in 1912 than in 1911. Premiums written increased $26,500,000, while the losses paid show an increase of about $7,000,000. As summarized by the *United States Review*, this summary would seem to show "that while the business of 1912 produced more satisfactory results from an underwriting standpoint than that of the preceding year, the lower values of the securities owned by the companies, however,

FIRE AND MARINE INSURANCE COMPANIES
(Compiled from the *Insurance Year Book*)

Year	Number of Companies and Lloyds	Capital (thousands)	Total Assets Exclusive of Premium Notes (thousands)	Net Surplus (thousands)	Net Premiums (thousands)	Total Income (thousands)	Paid for Losses (thousands)	Paid for Dividends (thousands)	Paid for Expenses (thousands)	Total Disbursements (thousands)
1912.	621	$96,944	$784,478	$292,893	$371,626	$410,760	$190,073	$32,526	$136,738	$359,338
1911.	621	97,703	754,344	283,201	358,623	392,966	184,917	33,291	129,474	347,683
1910.	628	94,918	713,138	263,867	352,436	385,657	168,433	35,905	124,878	329,218
1909.	636	87,638	668,194	243,414	333,862	365,264	156,369	31,217	116,964	304,552
1908.	636	84,704	611,752	211,989	313,329	339,068	167,354	28,655	111,314	307,223

fully offset the increased trade profit of the business when the aggregate gain in surplus is considered."

Fire Losses.—From the following comparative table, compiled from the carefully kept records of the *Journal of Commerce and Commercial Bulletin*, it will be seen that the 1913 fire losses to the end of August, in the United States and Canada, are within about $3,000,000 of the heavy loss for the first eight months of 1912. As regards the first eight months of the years 1911, 1912, and 1913, the losses aggregated $167,665,550, $163,750,350, and $160,537,250 respectively. For the full years of 1911 and 1912 the losses amounted to $234,337,250 and $225,320,600. Despite the increasing efforts of various agencies during recent years to limit the number and size of fires, the absolute amount of waste has declined but slightly, the per capita loss in this country still exceeding that of leading European countries by from five to six times.

FIRE LOSSES

	1909	1910	1911	1912	1913
January	$22,735,000	$15,175,400	$21,922,450	$35,653,150	$20,193,520
February	16,131,000	15,489,350	16,415,000	28,601,650	22,084,600
March	13,795,400	18,465,550	31,569,800	16,650,850	17,511,000
April	19,345,300	18,091,800	17,670,550	16,349,400	16,738,250
May	17,360,400	18,823,200	21,422,000	21,013,950	17,225,850
June	14,435,950	13,183,600	20,691,950	16,103,450	24,942,700
July	15,830,900	26,847,900	25,301,150	15,219,100	20,660,900
August	16,423,000	21,570,550	12,662,650	14,158,800	21,180,700
September	15,043,000	11,700,000	11,333,250	13,779,300	17,919,300
October	17,765,200	37,188,300	13,945,000	13,651,650	14,932,750
November	14,808,550	16,407,000	18,680,600	16,172,300	15,207,600
December	19,975,500	21,528,000	22,722,850	22,722,850	16,126,150

COMBINED RISKS OF AMERICAN AND FOREIGN COMPANIES
(*Insurance Year Book*)

Year	Amount Covered	Premiums Charged	Rate per $100
1901	$23,165,057,376	$239,588,817	$1.0342
1902	24,318,694,589	267,176,484	1.0986
1903	25,973,182,459	292,346,846	1.1255
1904	27,799,253,420	314,812,135	1.1324
1905	30,096,204,349	342,215,356	1.1371
1906	32,278,524,682	365,135,773	1.1312
1907	35,375,319,820	402,874,727	1.1389
1908	37,155,734,649	417,671,225	1.1241
1909	39,951,263,796	442,415,111	1.1074
1910	43,123,801,572	464,616,777	1.0774
1911	46,276,992,650	491,072,474	1.0612
1912	48,840,386,151	514,594,534	1.0536

Missouri's Anti-Trust Law. — The sweeping anti-trust law of Missouri, approved March 29, 1913, to take effect 90 days after the adjournment of the legislature on March 24, was the chief insurance topic of discussion of the year in the insurance and commercial press of the country. This act, having for its purpose the suppression of "pools, trusts, conspiracies and discriminations," was considered so drastic by the fire-insurance companies that the managements of the companies declined to take the risk of imprisonment for felony, and decided to discontinue writing business in the state.

The drastic character of the law may be indicated by extracts from its leading sections. It provided that:

> Any person who shall create, enter into, become a member of, or participate in any pool, trust, agreement, combination, confederation, or understanding with any person or persons to regulate, control or fix . . . the price or premium to be paid for insuring property against loss or damage by fire, lightning or storm, or to maintain said price when so regulated or fixed . . . shall be deemed and adjudged guilty of a conspiracy in restraint of trade, and be punished as provided for in this article.
>
> All arrangements, contracts, agreements, combinations or understandings made or entered into between any two or more persons, designed or made with a view to lessen, or which tend to lessen . . . free competition in . . . with a view to increase, or which tend to increase . . . the price or premium to be paid for insuring property against loss or damage by fire, lightning or storm, are hereby declared to be against public policy, unlawful and void.

Violations of the act were declared to constitute a felony. Any person convicted for any act prohibited or declared unlawful by the law, was to be punished by "imprisonment in the penitentiary not exceeding five years, or by imprisonment in the county jail not exceeding one year, or by a fine of not less than $500 nor more than $5,000, or by both such fine and imprisonment." Any corporation created or organized under the laws of Missouri could, upon conviction for any violation of the act, be declared by the court to have forfeited its corporate rights and franchises. On the other hand, any outside company doing business in Missouri could, upon conviction for violation of the law, have its right and privilege to do any business in the state forfeited. Moreover, the court could also by judgment and decree "declare all or any part of the property in this state of such corporation to be forfeited unto the state, or in lieu of the forfeiture of its right and privilege to do business in this state, or in lieu of forfeiture of all or any part of the property of such corporation, assess against it a fine. . . ."

Among the remaining drastic features of the act against which insurance companies took the greatest exception, two sections relating respectively to the information upon which the indictment or felony may be found, and the method of prosecuting the companies, provided the following:

> In any indictment or information for the violation of any of the provisions of this article, or for the doing of anything forbidden or declared unlawful by the provisions of this article, it shall be sufficient to allege that any person or persons have created, entered into, become members of or participated in any pool, trust, agreement, combination, confederation or understanding . . . and it shall not be necessary to allege how, when or where such pool, trust, agreement, combination, confederation or understanding was effected.
>
> In any proceeding against or prosecution of any insurance company under the provisions of this article, it shall be *prima facie* evidence that such company is a member of a pool, trust, agreement, confederation or understanding to control, effect, or fix the price or premium to be paid for insuring property against loss or damage by fire, lightning or storm, if it be shown that such company or any agent or representative thereof in writing insurance has used any insurance rate, or made use of or consulted any rate book, paper or card containing any insurance rate, prepared, published, kept or furnished by any person, association of persons or bureau employed by, representing or acting on behalf of any other insurance company or association in and about the making and publishing of insurance rates for use in any portion of this state.

In view of this law, the companies belonging to the Western Insurance Bureau and the Western Union, about 185 in number, unanimously adopted a resolution to suspend writing fire-insurance risks in Missouri on and after April 30, 1913. The attitude of the companies in reaching this decision is indicated by the declaration of the companies of the Western Insurance Bureau that they had taken

the advice of counsel relative to the law, and while keenly desiring to do business in the state, they were compelled to conclude that they could not transact business under the "harsh and unusual provisions of the law without being in jeopardy of prosecution and conviction, even though as law-abiding companies they should conscientiously endeavor to obey the law in letter and in spirit." They therefore concluded "each for ourselves" to cease granting insurance on April 30, 1913, either directly or indirectly, and to maintain this attitude "until some safe and practicable method of doing business in the state shall have been devised." It may be added that there was little to restrain the companies from suspending the writings of business in the future because losses in Missouri, according to the state's insurance report, amounted to 76.5 per cent. of the permiums in 1911 and 70.9 per cent. in 1912. As one prominent insurance journal states, the fire insurance companies paid out $1.15 in losses and expenses, during the years 1911 and 1912, for every dollar of premiums they received in Missouri.

Following the determination of the companies to suspend doing business in the state, a violent controversy arose between the companies and certain Missouri state officials. Judging from the numerous press accounts of the controversy, the state officials at first declared the attitude of the insurance companies to be one of bluff, and threatened the companies in various ways if they carried into effect their intention of withdrawing from the state. The Governor of the state was quoted as declaring that any company withdrawing from the state would never be allowed to return so long as it was in his power to prevent it. The Superintendent of Insurance was quoted as having concluded to revoke the license of any company that suspended writing insurance in the state. Various suits were also brought against the companies, and the Supreme Court of the state rendered a decision declaring that 130 companies of the United States and foreign countries were guilty of being parties to a conspiracy to violate the law of Missouri by having agreed to suspend the writing of insurance. On the other hand, the absence of protection to the vast property interests of the state, especially in St. Louis, caused representative bankers and business men to make strenuous efforts to induce the Governor to convene the legislature in special session with a view to repealing or modifying the law. These efforts proving unsuccessful, various business organizations in the large cities of the state undertook to carry through a referendum petition with a view to suspending the operation of the law and of permanently defeating it at the polls. They also undertook to raise the question of the constitutionality of the act.

The situation was finally cleared by a compromise by which nearly all the companies resumed the acceptance of new risks on Aug. 19, on the condition and understanding that the Attorney-General of the state would hold the obnoxious provisions of the act to be unenforcible on the ground that they were in conflict with the state constitution; and also under an agreement by the Attorney-General, seconded by the Governor, that no attempt would be made by the state's legal department to enforce the law, and that such action would not be permitted on the part of other public prosecutors. According to the insurance press the Attorney-General of the state, in a written opinion delivered to a representative of the companies, stated that the "*prima facie* evidence section" is illegal and void, that pending suits against the companies were to be dismissed, and that "if any prosecutions are instituted by prosecuting officers in any of the counties of Missouri charging a violation of the law by the use of the same rates by two or more companies he will intervene and dismiss the suits, as he has the power to do as Attorney-General." He is further quoted as having stated that in his opinion it is lawful for the companies to maintain bureaus for the ascertainment of proper rates, and that hereafter companies may continue to do business in Missouri in the same manner as in other states having anti-trust laws. The Governor, on the other hand, is declared to have

expressed his intention of appointing a commission of business men, of which the Insurance Commissioner will be a member, to study the subject of insurance and to examine the laws of other states, with a view to making recommendations for progressive and beneficial legislation on the subject of insurance at the next session of the legislature.

Revision of the Standard Fire Policy.—In the early part of 1913 a committee of the National Convention of Fire Insurance Commissioners completed its revision of the New York standard form of fire insurance policy. The language of the policy was altered as little as possible, but with a view to greater clearness the subject matter was arranged under headings and grouped in such a manner that all matters which apply before a loss takes place, or which become operative after a loss occurs, would be brought together. The arbitration clause was slightly changed, the committee having decided to adopt the suggestion that the third person be appointed by the supervising insurance office of the state instead of by the court.

The National Fire Prevention Convention.—A so-called Fire Waste Congress, the first of its kind, was held in Philadelphia from Oct. 13 to 18 under the auspices of the Fire Prevention Commission of the Philadelphia Department of Public Safety. It was attended by Federal, state and municipal officials interested in the subject of fire insurance, representatives of all the important trade, civic, labor and business associations, as well as by representatives of the leading insurance organizations of the country. The programme was a very elaborate one and covered the entire subject of fire waste.

Insurance Federations.—The organization of two insurance federations during 1913 has been announced by the insurance press, namely, those of Ohio and Missouri. W. S. Diggs, president of the Insurance Federation of Ohio, announced in August that the membership is rapidly including the 25,000 insurance men of the state. The Federation was organized with the idea that the interests of policyholders, agents and companies are one, and that in working for the interests of policyholders, the agents and companies are furthering their own interests. Briefly outlined, the chief purposes of the organization have been stated as follows:

To educate the public to a fair view of proper insurance methods.
To promote and protect the interests of the insurer and the insured.
To eliminate and correct all evils or abuses which may creep into the insurance business.
To educate and inform the public as to the particular benefit of each form of insurance and thus make it easier for the insurance writer to procure business.
To coöperate with the public in the enactment and enforcement of just and beneficial insurance laws.

A similar federation is being formed in Missouri, the principles of the organization being similar to those stated above, and according to the press it is believed that the new organization will do much to prevent a repetition of the enactment of laws such as the anti-trust law already discussed. Indiana, according to reports, is to organize a similar federation.

Liability Insurance.—In the 1912 issue of the YEAR BOOK (p. 361) reference was made to the remarkable growth of this form of insurance, due mainly to the enactment of more drastis employers'-liability laws. The number of companies writing this form of insurance in the United States, it was shown, increased from 32 in 1911 to 45 in 1912, while the premium income increased from $28,652,624 to $35,002,490. During 1912 the number of companies writing liability insurance in the United States increased by only two, but the increased net premium income for the year clearly demonstrates the continued rapid growth of the business. For all liability lines the net premiums written in 1912, excluding the premiums on automobile damage risks, amounted to $49,276,079. Paid losses, on the other hand, totaled $25,622,503, as compared with $16,548,724 in 1911, the loss ratio being 52 per cent. as compared with 57.7 per cent. in 1911 and 1910.

Numerous state commissions considered employers'-liability legislation during 1912 and a full abstract of the reports of these commissions, as well as the acts which went into effect

during 1912 and 1913, is presented by Edwin DeLeon in his review in the *Insurance Year Book* for 1913. The important legislative recommendations and acts of the year affecting liability insurance are briefly summarized in the following paragraphs. The provisions of the acts relating to the compensation of workmen are reviewed on another page (see XVII, *Labor Legislation*).

1. In December, 1912, the Industrial Accidents Commission of Pennsylvania, appointed for this special purpose, recommended an elective workmen's compensation act similar to the law of New Jersey. An Employers' Mutual Liability Insurance Association to work in competition with the casualty companies was also recommended. The legislature, however, adjourned the session of 1913 without enacting the bills recommended.

2. A commission appointed by the legislature of Nebraska recommended at the close of 1912 an elective system of compensation, to be managed by the Labor Commissioner and to cover state and governmental agencies and all employers employing five or more persons, except domestic servants and farm laborers. An act based on this report went into effect on July 17. Employers are permitted to insure their liability in any stock or mutual company legally transacting business in the state, but every policy has to cover the entire liability under the act.

3. A commission appointed by the legislature of Iowa recommended a compensation act, elective as to all private employers and compulsory as to the state and municipalities, to be supervised by an industrial commission, which was enacted in 1913 to take effect on July 1, 1914. Exception is made of domestic servants, farm laborers, casual employees and clerical and office positions. Employers may take insurance in a company or association legally transacting business in the state, or may make agreements with their workmen for a schedule of compensation in lieu of that stipulated in the act, provided the full benefits of the act are secured under such agreement.

4. A commission appointed by the legislature of Minnesota recommended a compensation act at the close of 1912, to be administered by the Labor Commissioner, which was enacted (Ch. 467) and went into effect on Oct. 1. In general outline the act is similar to that of Iowa.

5. A commission appointed by the legislature of West Virginia recommended a compensation law, providing for a state insurance fund to be administered by the Public Service Commission. Employers have the option of paying premiums into this fund or of assuming liability with the common law defenses removed. Employees in all industries are covered, except domestic or agricultural servants.

6. Ohio amended its existing compensation law in 1913 by making it compulsory as regards all employers having five or more workmen. The amendment, which takes effect Jan. 1, 1914, also created an insurance fund to be administered by the state Liability Board of Awards. Occupations are to be classified by the Board with reference to the hazard involved, and rates are to be fixed for each so as to maintain a solvent state fund and an adequate surplus. There is to be an adjustment every six months in the rates, to be based upon the experience of each class.

7. A commission appointed by the legislature of Connecticut recommended an elective compensation act, to be administered by a commission of five appointed by the Governor, which was enacted and becomes effective on Jan. 1, 1914. In accordance with the recommendations of most other states the act applies to all municipal and public corporations, and to private employers having five or more employees, but excluding casual employees. Insurance to the extent of the full liability must be taken in some stock or mutual company doing business in Connecticut, or the employer must satisfy the Insurance Commissioner of his financial ability to pay the required compensation or satisfactory security must be filed for that purpose.

8. A commission appointed by the legislature of Texas reported a compensation act to be administered by an Industrial Accident Board, which

was enacted and became effective on Sept. 1. The act is elective, and employers can either insure against their liability in a stock or mutual insurance company, or become subscribers to the insurance association, the organization of which is contemplated in the report of the commission.

9. A commission appointed by the state of Nevada recommended and the legislature enacted an elective compensation act creating a state insurance fund, to be administered by an Industrial Commission. This commission is to promulgate the schedule of rates, and no other form of insurance is provided for employers. The act applies to the state and its municipalities, and covers all employers having two or more employees in the same general employment, except domestic and agricultural servants. The common law defenses are abrogated if any employer elects not to come under the act.

10. The New York legislature passed an act providing for a state fund to be contributed to by employers and managed and regulated by the state, in which employers were given the option of insuring their employees. Employers were also left the option to insure their employees in liability insurance companies, if they so desired. This act had the support of the state Insurance Department and a majority of the employers of the state, representing approximately 700,000 employees. The labor interests, however, favored an opposition bill which excluded the last option entirely, aiming to create an insurance monopoly by the state to the exclusion of insurance corporations. The bill was vetoed by the Governor.

11. Compensation acts were also passed during 1912 by the states of Arizona, Maryland, Michigan, New York and Rhode Island, and the New Jersey act was amended. The provisions of these new laws, with the exception of the New York act, are summarized in Department XVII, *Labor Legislation.* The New York act, passed in December, is reviewed in Department I, *American History.*

Among the other events in the field of employers'-liability insurance, two deserve special mention:

First, the decision of the New Jersey Supreme Court, upholding the constitutionality of the New Jersey Workmen's Compensation Act. This law, at the time of its enactment, represented the most drastic law adopted in the United States and has been made the basis for legislation in a considerable number of other states (*A. Y. B.*, 1911, p. 325). The act was declared not to be in violation of the Fourteenth Amendment to the Federal Constitution, and not to impair the obligation of contracts within the meaning of the state and Federal constitutions. Furthermore, in answer to the contention that the act violates the provision of the state constitution that the right of trial by jury shall remain inviolate, the Court ruled that the language of the constitution is to the effect that the right to a jury trial shall remain inviolate, but not that it shall be unalterable, and that, therefore, trial by jury is not an absolute right, but a privilege which may be waived by either party.

Second, the establishment of the Accident Prevention Bureau by the liability insurance companies. At first liability companies were obliged largely to guess at rates, but risks were later classified, especially through the activities of the Liability Conference, with a view to adjusting rates approximately to the hazard involved. In recent years, however, there has been a growing sentiment in favor of the idea that it is to the interests of both underwriters and insured, safer to the companies and less costly to the employers, if efforts are made to avoid accidents. Such efforts necessarily involve competent and periodical inspections with a view to ascertaining removable causes of danger. The knowledge gained by such inspections, it is apparent, would also constitute a valuable aid in the establishment of rates, the penalizing of dangerous conditions and the rewarding of favorable ones. For a number of years the companies have maintained such inspections and, in the main, employers have not been opposed to them. The purpose of the Bureau is to bring about greater efficiency in this work of conserving the life and health of employees. (See also XXIII, *Engineering.*)

Accident and Health Insurance.—The volume of business transacted by companies writing this form of insurance in 1912 is shown below:

ACCIDENT AND HEALTH INSURANCE

Year	Accident Insurance			Health Insurance		
	Premiums	Losses	Ratio of Losses to Premiums	Premiums	Losses	Ratio of Losses to Premiums
1912.....	$29,792,473	$13,408,552	45.0	$6,339,406	$3,126,160	49.0
1911.....	27,351,626	11,837,347	43.2	7,101,666	3,314,301	46.6
1910.....	23,894,665	10,068,926	42.1	6,451,028	2,770,744	42.9
1909.....	21,446,506	8,248,182	38.4	5,714,579	2,173,386	38.0
1908.....	19,044,634	8,104,933	42.5	4,592,365	1,859,276	40.5

During the year 1912 two new American companies confining their activities solely to this class of insurance entered the field, while one foreign company was admitted to the United States to write accident and health insurance in conjunction with other casualty lines. On the other hand, three companies discontinued the business, two by reinsurance and one by merger. In the Year Book for 1912 (p. 363) it was stated that, although premiums showed a substantial increase in recent years, the ratio of losses to income reflected a considerable increase, especially in the case of health insurance. This tendency, as indicated by the table, has continued during the year 1912, the ratio of losses to premiums in accident insurance having increased from 43.2 per cent. in 1911 to 45 per cent. in 1912, and in health insurance from 46.6 to 49 per cent. This unfavorable showing is probably traceable in the main to the ever-growing hazard of the automobile. Edwin DeLeon states in the *Insurance Year Book* for 1913 that the experience of the largest and oldest company in the business shows the losses from the automobile hazard to have increased from 2.9 per cent. of the total during the five years from 1902 to 1906 inclusive to 6.05 per cent. in 1908, to 11.4 in 1909, to 14.1 in 1910, and to 21.8 in 1911.

Most of the leading underwriters during the year 1912 continued their efforts to eliminate unreasonable competition along the line of granting gratuitous benefits to policyholders. Their efforts finally took the form of united action at the annual convention of the International Association of Casualty and Surety Underwriters, in August, 1912. The entire matter of adopting a standard policy form was referred by resolution to the standing committee of the personal-accident section of the Association, with the idea that the committee prepare a report by Oct. 1, and that the proposed policy changes become effective on Jan. 1, 1913. Although the resolution was adopted unanimously, certain companies did not find acceptable the standing committee's recommendations for changes in the policy, with the result that no definite action was taken in this important matter, despite the increase in the loss ratio. In the early part of June, however, the insurance press announced the terms of the new standard accident contract agreed to by the standing committee of the accident section of the International Association of Casualty and Surety Underwriters. Their report recommended that no policy be issued without a signed application; that children's insurance and beneficiary insurance be eliminated; that the words "external and violent" be used in connection with the phrase "accidental means" in the insuring clauses of the policy; that there be adopted a definite accumulation benefit clause, and that thereafter no substitute shall be offered for the accumulations outlined in the recommendation, either by rider, endorsement or the issuance of a policy giving the accumulations in full, with or without an additional premium; and that "no policy of accident insurance should be issued dur-

ing the year 1914 giving greater benefits or introducing into accident policies features providing benefits not contained in policies that are now proposed to be issued even for an additional premium." All of the recommendations adopted by the standing committee were submitted in the form of an agreement to the various companies with a request that they affirm the action of the committee and sign the agreement.

Among the remaining important events relating to this form of insurance should be mentioned the enactment of standard health and accident policy laws by New York, North Carolina, Minnesota and Vermont, and the formation of the American Association of Accident Underwriters. The formal organization of this Association occurred in May, and at the meeting there were present about 50 representatives of health and accident companies from all parts of the country.

Fidelity and Surety Insurance.—The data of the issue of the *Insurance Year Book* for 1913 show that the combined premiums received by fidelity and surety companies aggregated $19,243,184 during 1912, or an increase of $2,285,133 over 1911. The losses increased from $4,980,430 in 1911 to $5,192,456, the ratio of losses to premiums therefore declining from 29.3 per cent. in 1911 to 27 per cent. in 1912. It should be noted that the increase in premium income took place entirely in the surety business, the premiums from this business increasing from $7,169,793 to $10,122,266 in 1912. Fidelity premiums, on the other hand, declined from $10,435,719 in 1911 to $9,120,918 in 1912.

While three companies ceased writing fidelity and surety risks during 1912 by reinsurance, at least ten new companies entered the field. Despite the increase in competition, however, no serious attempts were made to cut rates or commissions. This favorable condition of affairs, judging from the insurance press, has not continued during 1913. Toward the close of August it was reported that one of the largest New York companies declined to withdraw certain agents who were not working in accord with the rules adopted by the Surety Association, and that another important company resigned from the Association on the ground that: "it did not care to continue in an organization which could not control its own members." Rate wars at this particular time are considered highly undesirable in the business and for this reason the uncertain future of the Association is lamented by many underwriters.

FIDELITY AND SURETY INSURANCE

Year	Premiums	Losses	Ratio of Losses to Premiums
1912	$19,243,184	$5,192,456	27.0
1911	16,958,051	4,980,430	29.3
1910	15,473,057	2,814,899	18.1
1909	13,283,693	3,200,645	24.0
1908	12,530,922	3,826,427	30.5

The chief problem which confronted the business during 1912 was the increasing liability of surety companies under contractors' construction bonds in states where workmen's compensation laws have been adopted. According to Mr. DeLeon's account in the 1913 *Insurance Year Book:*

> These laws materially increase the liability of the contractor and therefore of the surety company, for the owner draws his contract for the construction of a building so as to provide that the contractor shall indemnify the owner against every known hazard or contingency, including claims by workmen under these compensation laws, and for the same reason the general contractor shifts this burden whenever possible upon the shoulders of the sub-contractor. Many of these laws provide in specific terms that the owner shall be directly liable under certain conditions for injuries sustained by employees of contractors on work let or subject, with the result that the surety bond is conditioned for the performance of all the terms of the contract, and if liability attaches to the owner for injuries to workmen this obligation must be assumed by the contractor and the surety company.

XV. POPULATION AND IMMIGRATION

Walter F. Willcox

POPULATION

Classification by Marital Condition.—During 1913 statistics showing the population of the United States in 1910, distributed by marital condition, were given to the public. A similar Federal inquiry was carried to completion for the first time in 1890, and thus we now have figures covering a 20-year period. In the total population of the United States the proportion of single has been steadily falling and that of the married steadily rising. In 20 years the single have declined from 59.3 to 55.4 per cent. of the population, or nearly four per cent. This decrease in the second decade was more rapid than in the first. Within the same period the proportion of married rose from 35.7 to 38.9 per cent. of the population. There has been a slight increase also in the proportion of widowed. Clearly married life is becoming more and more general.

In casting about for an explanation of these surprising figures the first possibility which occurs is that they may be connected with the decreasing proportion of children, or, what is another way of expressing the same fact, the increasing proportion of people of marriageable age. The correctness of this guess can be tested by excluding from the comparison all who are too young to marry. For this purpose the dividing line between children and adults is usually assumed to be 15 years. The figures show, however, that among adults, as thus defined, married life has become more common and single life less common. The proportion of married among adults has risen in 20 years from 55.3 to 57.3 per cent. and that of single has fallen from 36.9 to 34.4 per cent., while the proportion of the widowed has remained about the same. Obviously the decreasing proportion of children explains a part, but only a part, of the increasing prevalence of married life.

In the southern states, that is, the South-Atlantic and South-Central, the proportion of single persons in the adult population is less, and the proportion of married and of widowed is greater, than it is in the northern states, that is, the North-Atlantic and North-Central. The proportion of single in the northern states, while greater than in the southern, is noticeably less than in the Far West, and likewise the proportion of married in the northern states, while less than in the southern, is greater than in the West. In all sections, however, the proportion of single has been falling and the proportion of married rising.

Changes similar to those in progress in the whole country and its main divisions were in progress also during the 20 years in nearly all of the states; for example, among the males over 15 the proportion of bachelors decreased between 1890 and 1910 in every state except Minnesota and South Dakota; and in the same period the proportion of husbands increased in every state except Rhode Island, Wisconsin, Minnesota and the Dakotas. The proportion of widowers increased in every state except North Dakota and Wyoming.

The increase in the prevalence of married life and the decrease in the postponement of marriage or abstinence from it are clear and country-wide. It might be said that these figures, referring as they do to all persons over 15 years of age, do not prove that marriage is taking place

MARITAL CONDITION OF THE POPULATION, 1910

Marital Condition	All Ages				Adults, 15 Years and Over			
	Male		Female		Male		Female	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per. Cent.
Total	47,332,277	100.0	44,639,989	100.0	32,425,805	100.0	30,047,325	100.0
Single	27,455,607	58.0	23,522,121	52.7	12,550,129	38.7	8,933,170	29.7
Married, widowed, or divorced	19,721,146	41.7	21,049,696	47.2	19,720,152	60.8	21,045,983	70.0
Married	18,093,498	38.2	17,688,169	39.6	18,092,600	55.8	17,684,687	58.9
Widowed	1,471,472	3.1	3,176,426	7.1	1,471,390	4.5	3,176,228	10.6
Divorced	156,176	0.3	185,101	0.4	156,162	0.5	185,068	0.6
Marital condition not reported	155,524	0.3	68,172	0.2	155,524	0.5	68,172	0.2

as early as formerly. In other words, the tendency to postpone marriage, often asserted to exist in the United States, may really exist and yet be masked by an increase in the proportion of married persons among those of a higher age. To test this conjecture, the proportion married among young women at ages between 15 and 19 and in both sexes at ages between 20 and 24 is given below:

Sex	Age	Per Cent. Married		
		1890	1900	1910
Males	20–24	18.9	21.3	24.1
Females	15–19	9.5	11.0	11.4
Females	20–24	46.7	46.6	49.8

These figures show that the proportion of young men who are married has increased 5.2 per cent. in the 20 years. The proportion of girls under 20 years of age who are married has increased about two per cent. and that of young women between 20 and 24 years of age has increased about three per cent. Obviously early marriage was more common in the United States in 1910 than it was 20 years earlier. When the higher ages are studied, somewhat different results appear. Under 35 years of age the proportion of men who were married was greater in 1910 than in 1890; above that age the proportion was less. As the number of men between 15 and 35 years of age is greater than the number over 35, the increasing proportion of married below that age controls the total results at all ages over 15. Among women the proportion who are married at ages above 25 has remained unchanged for 20 years at 71.1 per cent. The increase of marriages below that age, then, controls the movement for the total at all ages above 15.

These figures show in the United States as a whole no trace of a change often believed to be in progress, whereby postponement of marriage or abstinence from marriage is becoming more general. This unexpected result is the more remarkable, since during these 20 years there has been a great increase in the proportion of urban population, which in 1890 constituted 36 per cent., and in 1910, 46 per cent., of the total population. An analysis made for 1900 shows that in cities the proportion married is distinctly less than in country districts. An explanation of these figures is probably to be sought in the very rapid increase of immigration since 1890, the large number of marriages among recent immigrants and the youthful age at which they marry. If this conjecture be correct, the growth of immigration has been more than sufficient to offset any tendency that might otherwise have been detected in the general population towards a postponement of marriage or even an abstention from it.

As the figures showing the increase of married in the total population deserve further analysis, a distinction has been drawn between white and negro. Among negro adults, or persons over 15, the proportion of married is the same for the two sexes.

It is greater than the proportion of married among white males and less than the proportion of married among white females. The difference between white males and white females, whereby the proportion of married white women exceeds that of married white men by over three per cent., is mainly due, no doubt, to the large excess of males in the total white population of the country. In the white population over 15 years of age the men outnumber the women by two and one-quarter million, or by four in every hundred.

Death Rate by Marital Condition.—During the past year a study of the comparative death rates of the single, the married and the widowed in New York State outside of New York City and Buffalo, has yielded interesting results. Prior to this study the only American figures upon the death rate of the single, the married and the widowed were those found in the Federal censuses of 1890 and 1900, and in them only three age classes, namely, 15 to 44, 45 to 64, and 65 and over, were recognized. The ratios which resulted were practically valueless because 20 or more years were included in each age class, and in any class of that size the average age of married persons would be higher than that of single persons and lower than that of widowed. To take an example from the class between 15 and 44 years of age, the average age of American bachelors is nearly 24, that of husbands nearly 34, and that of widowers nearly 36 years. Similarly the average age of spinsters in this age class is 22.4, that of wives 31.7 and that of widows 35 years. These differences in age alone, even if there were no other difference in the mortality of the single, the married and the widowed, would make the death rate of husbands 15 to 44 years of age 21 per cent., and the death rate of widowers 26 per cent., above that of bachelors in the same age period. For the same reason the death rate of wives would exceed that of spinsters by 26 per cent. and that of widows would exceed it by 34 per cent. To get an adequate measure of the relation between marriage and mortality the age classes should include no more than five years. In the New York figures 10-year periods have been used, a great improvement on previous American practice and a long step towards the 5-year periods used in the best foreign studies. The death rates have been found by averaging the deaths for the three years 1909, 1910 and 1911, in the population of the state outside New York City and Buffalo. The results for men are as follows:

Age Period	Death Rates by Marital Condition		
	Bachelors	Husbands	Widowers
20–29	6.6	4.2	12.0
30–39	12.9	5.9	14.1
40–49	19.5	9.5	17.3
50–59	28.7	17.0	30.5
60–69	51.0	31.9	48.6
70–79	101.4	72.7	96.0
80 and over	204.2	205.1	315.7

The most obvious fact indicated by these figures is that the death rate for husbands is much lower than that for single men at each age group except the highest, where it is about the same. The percentage of difference is greatest at the ages 30 to 39 and 40 to 49, where the death rate of husbands is somewhat less than one-half that of bachelors.

The table also shows that the death rate of widowers and divorced men is considerably higher than that of husbands of the same age, and between the ages of 30 and 80 is not far from the death rate of bachelors of the same age. If husbands lose their wives, then, they lose much of the chance of longevity which marriage secures them; and, in general, the younger they are, the greater proportion of this chance they lose.

The following table shows corresponding figures for women:

Age Period	Death Rates by Marital Condition		
	Spinsters	Wives	Widows
20–29	4.7	5.7	9.4
30–39	7.4	6.3	9.5
40–49	10.0	8.2	12.1
50–59	19.9	14.5	18.8
60–69	37.1	28.1	38.2
70–79	82.2	61.4	87.2
80 and over	279.8	194.8	268.9

Here again the striking fact is that the death rate of wives is lower than that of single women of the same age. The only exception is at the age period 20 to 29, perhaps due in part to the influence of child-bearing at those years upon the mortality of wives and in part to the greater average age of the wives in that group. As women marry at the average age of about 25, the average age of wives between 20 and 30 would be noticeably above the average age of spinsters in the same group. The advantage of wives over spinsters in the matter of mortality, however, is far less than that of husbands over bachelors.

The mortality of widows and divorced women as a rule is higher than that of spinsters. It also exceeds that of wives, but not as much as the mortality of widowers and divorced men exceeds that of husbands. So, from the standpoint of mortality, marriage is of less benefit to women than to men.

Attention has been called to the fact that these results differ widely from those drawn from insurance statistics, showing that the death rate of insured wives is higher than that of insured spinsters. Probably both results are correct for the classes to which they apply. The conclusions for New York are corroborated by the results in every foreign country which has made a similar analysis of its vital statistics. The divergent results reached by some students of insurance companies' experience, like other similar divergencies, can best be explained as due to the influence of selection. For example, the death rate of insured women is often higher than that of insured men of the same age, a result in striking contrast to the lower death rates of women in the general population, except perhaps in some countries among women between 20 and 30 years of age. This is probably due to the fact that a large proportion of men take out insurance policies even when they believe themselves in perfect health, while among the women who apply for and receive insurance a notable proportion have reason to suspect that their health is subnormal.

Interstate Migration.—The census has given figures showing the state of birth of our native population for every census since the Civil War. Before that date the figures applied only to the free population, and therefore are not to be compared with the figures since emancipation. Between 1870 and 1900 the migratory tendency of the native population of the United States as thus measured was slowly diminishing. In 1870, 23.2 per cent. and in 1900 only 20.6 per cent. of the population were living outside the state of birth. But during the first decade of the twentieth century interstate migration increased with about the same rapidity as it decreased between 1870 and 1880 or 1880 and 1890, and the proportion living outside the state of birth is now nearly as great as it was in 1880. This increase in the amount of interstate migration holds true not merely of the country as a whole, but of every state west of the Mississippi River and of 11 out of the 25 states east of that river. The 14 states in which emigration of natives showed no increase between 1900 and 1910 included all the New England states, New York, New Jersey, Ohio, Virginia, North Carolina, Georgia, Alabama and Mississippi.

The census figures, also, make it possible to determine what states have had a net gain and what a net loss through interstate migration. Those with a net loss are such as have contributed more of their native population to the population of other states in the Union than they have received from the natives of other states; those with a net gain are such as have received from other states more natives than they have contributed to the rest of the Union. Both in 1900 and in 1910 the United States was divided approximately by the Mississippi River into an eastern area, the states of which had suffered a net loss through interstate migration, and a western area, the states of which showed a net gain by interstate migration. But the division line is moving westward; in 1880 a number of states east of the Mississippi River, namely, Wisconsin, Michigan, Illinois, Indiana and Mississippi, had gained more than they had lost by interstate migration, and even in 1900 this was true of every state west of the Mississippi River; but in 1910 it was not

true of four trans-Mississippi states, Iowa, Missouri, Louisiana and Utah. At all these censuses a few manufacturing or mining states east of the Mississippi River, like the three southern New England states, New Jersey, and West Virginia, and outlying states like Florida and Michigan, largely surrounded by water, had received more native immigrants than they had sent out.

Of the two races in the United States of which the native population is composed, the white and the negro, the whites are the more migratory. This is shown by the fact that in 1910 the native whites who were living outside of the state of birth were 22.4 per cent. of the entire number, but of the native negroes the corresponding percentage was only 16.6. This difference exists in the great majority of the old slave states and in four of the free states, namely, Ohio, Indiana, Illinois and Kansas. For example, among the negroes native of Texas 9.3 per cent. were living in some other state, while of the whites native of Texas 13.8 per cent. had emigrated. But in all the western and nearly all the northern states the proportion of the few native negroes who have left the state is greater, and often much greater, than the proportion of the whites.

Between 1900 and 1910 interstate migration increased among each of the main races. The proportion of native whites living outside the state of birth increased from 21.5 per cent. in 1900 to 22.4 per cent. in 1910; the proportion of native negroes outside the state of birth increased from 15.6 per cent. in 1900 to 16.6 per cent in 1910.

IMMIGRATION

Arrival and Departure of Aliens.—It is very common to think and write of immigration into the United States as amounting to approximately one million persons a year. For this popular delusion, encouraged by a natural fondness for round numbers, the Bureau of Immigration is in large measure responsible. Thus, in its annual report for 1912 (p. 4), the statement is found: "If the past decade is considered as a whole, it will be noted that immigration has amounted to almost 1,000,000 aliens a year." But in 1908 the Bureau of Immigration began the publication of figures by the aid of which it is possible to correct the error. For five years the annual reports of the Bureau have shown not only the number of arriving aliens, whether coming to this country as residents or for a temporary stay, but also the number of departing aliens. During the five years 1908-12 the arriving aliens numbered 5,114,442, or an annual average of 1,022,888. But during the same period the departing aliens numbered 2,629,-145, or an annual average of 525,829. The difference between the two currents, or the amount of immigration, in the popular or ordinary acceptation of that term, was 2,485,277, or an annual average of 497,055. In other words, the average real immigration, or immigration in the popular acceptation of that word, has been less than half (48.6 per cent.) of the reported immigration, or immigration in its technical official meaning. The average, however, was considerably exceeded in the fiscal year 1913, when the net increase in population from immigration was 815,303. The total number of aliens admitted was 1,427,-227, compared with 1,017,155 the previous year; and the departures were 611,924, compared with 615,292 in 1911-12.

Insanity among Immigrants.—There has been much discussion of the growing burden of insanity upon the taxpayers and of the part in that burden to be ascribed to the foreign-born population. It has been frequently said that the rapid increase of insane in institutions is largely due to unrestricted or unsifted immigration. But this question has usually been discussed with too little appreciation of the real nature of the evidence necessary to prove the assertion. Insanity is essentially a disease of old age. For example, in 1904 among each 100,000 white persons 20 to 24 years of age in the general population, 83 were insane persons in institutions; among those 40 to 44 years of age, 448 were insane; and among those 60 to 64 years of age, 522 were insane. This indicates that insanity at ages 60 to 64 is more than six times as common as at ages 20 to 24. Any comparison which ignores this rapid

increase of insanity with age and the diverse age composition of the native and the foreign-born population is almost sure to be misleading.

The insane in institutions are increasing with great rapidity in the United States, as in many other countries. How far this increase is due to and proves an actual increase of insanity, and how far it is to be explained by the extension of public provision for the insane in institutions, cannot be determined from the evidence in hand. The latest Federal figures regarding the insane in the United States are those for 1890 and 1904. By comparing the results of these inquiries with the census figures of 1890, 1900 and 1910, it is now possible to estimate the number of foreign-born white males between 35 and 39 years of age who are in institutions for the insane to every 100,000 foreign-born white males between 35 and 39 years of age residing in the country. Similar figures can be computed for each sex, each age and each nativity class, and thus more accurate comparisons than ever before can be made between the prevalence of insanity or at least institutional insanity among the native and the foreign-born at two different enumerations. The general result is to show that insanity is more common among the foreign-born than among the native of the same sex and age. This is true in all but three of the 56 classes compared. In seven of the 56 classes the ratio of insanity among the foreign-born is more than double that among the natives, while in 46 of the 56 cases the excess of insanity among the foreign-born varies from nothing to 100 per cent.

In interpreting these figures two considerations should be kept in mind. In the first place, the insane in institutions are much more numerous relative to population in the North than in the South. In the southern states there were 116 such insane in 1903 to each 100,000 persons; in the northern states the proportion rose to 218. The simplest and most obvious explanation of the difference is to ascribe it, at least in large measure, to the more adequate provision of institutions for the insane among the wealthier and more densely settled northern states. If this interpretation is accepted, then the larger proportion of foreign-born insane in institutions can be ascribed, at least in some measure, to the fact that the foreign-born, living as they do mainly in the northern states, share in the proportions characteristic of those states. To test the conjectural explanation, the insane population in institutions in the several states should be classified by sex, age and nativity, and this information is lacking. In default of that information, I have estimated for New York State the number of native and of foreign-born white over 20 years of age in 1903 from the census returns of 1900 and 1910, and have compared the number of native and of foreign-born insane in institutions with these results. This method, though crude, is probably the best which the tabulations permit. It indicates that the proportion of insane in institutions among the foreign-born white adult population of New York State exceeds that among the native white adult population by about 38 per cent., a difference notably less than that indicated by the figures for the entire country.

A second difference between the native and the foreign-born population, of much importance for the present purpose, is that the foreign-born live largely in cities. Insanity is more likely to occur in cities, or at least, if it occurs there, it is more likely to result in a transfer of the patient to an institution. Hence the larger proportion of insanity among the foreign-born is probably due in some degree to the fact that they are massed in areas where insanity is more likely to arise, to be detected, or at least to demand and secure institutional care. On the whole, then, the figures of 1903, compared with the census figures of 1900 and 1910, do not indicate an abnormal or alarming prevalence of insanity among the foreign-born population. They afford no reason to suppose that through either public or private agencies this country is being made a dumping ground for the insane of other countries.

XVI. SOCIAL AND ECONOMIC PROBLEMS

RECREATION

ROWLAND HAYNES

The Year's Progress. — The year 1913 has been marked by important legislation affecting the administration of recreation; by the appearance of a new type of recreation survey, namely, a survey of the efficiency of recreation systems in certain cities and a working out of standards therefor; by extension in the special training of playground and recreation workers; by growth of the propaganda for wholesome recreation in rural communities and smaller cities; and by the progress of plans for an International Committee on Recreation.

Growth and Status of Public Recreation.—Reports for 1913 gathered from over a thousand communities for the *Year Book* of the Playground and Recreation Association of America showed 342 cities maintaining 2,402 regularly supervised playgrounds and recreation centers and employing 6,318 leaders, directors and supervisors, in addition to about one-fourth as many more caretakers. About 60 per cent. of these leaders were women workers. These figures indicate an increase of 20 per cent. over 1912 in the number of cities maintaining such work. Forty-three cities stated that supervised recreation activities were opened for the first time in 1912, 70 cities for the first time in 1913.

The growth of indoor recreation centers has been especially marked, returns showing 134 cities with 529 centers open evenings in their school buildings. In 15 cities streets were reported as set aside for play, besides 96 cities reporting streets reserved for coasting in winter. Twenty cities reported bond issues for recreation purposes aggregating over $2,400,000. A new feature of these statistics in the last two years has been the reports of communities of less than 5,000 population, showing the spread of the movement in small towns and rural districts.

Public Administration of Recreation.—During the present decade the administration of recreation has been undergoing a change similar to that in the administration of public education in certain parts of this country a century ago, that is, from private philanthropy to public service supported by taxation and carried on by a public board. Hence most of the problems of the year in cities have been those incident to this change or, in some of the cities where the work is oldest, to the reorganization of recreation administration on a sounder basis.

State Legislation. — Iowa passed a law centering the supervision of recreation activities in the hands of the school board. This law permits school boards to appropriate money from their regular funds for recreation purposes, and to submit to the people the question of a separate tax for the support of recreation activities.

Massachusetts passed a law for the appointment of a city planning commission in every city and town of 10,000 population or over. These commissions are charged not only with the usual tasks of a city planning commission in selecting sites for public buildings, parks and playgrounds, but also with the task of securing the better use of such facilities as already belong to the city.

New York amended its school laws, authorizing school boards, except in cities of the first class, to equip, main-

tain and supervise recreation activities, to select sites and to levy taxes for the purchase, lease or improvement of sites for recreation purposes. The law also authorized school boards to permit the use of school houses and grounds for public-library purposes, social, civic, recreational and welfare gatherings, as well as for polling places and political meetings.

The extension of the home rule principle by state laws is affecting recreation development in that it permits cities without recourse to state legislation to provide for commissions and other special forms for administering recreation activities. The New York, Michigan and Ohio home rule laws have during the year begun to be used to modify recreation administration in cities of those states.

Municipal Provision for Recreation.—Richmond and Norfolk, Va., and Birmingham, Ala., passed ordinances providing for a public recreation system. In Boston the creation of the new Department of Parks and Recreation is significant as unifying administrative forms previously scattered and as recognizing other than scenic functions of the Park Department. The Charter Commission of Detroit provided in the new charter, to be submitted to the people in 1914, for a recreation commission in whose hands is placed the supervision of all recreation activities in the city whether carried on in school or park facilities; representation on the recreation commission of the different boards affected is provided for. The new charter of Cleveland provides for a division of recreation under the Department of Public Welfare.

Wider Use of Public Facilities.—Recognizing the urgent need for public recreation and that the provision of enough buildings and grounds exclusively for recreation purposes adequately to meet this need would entail either a prohibitive expense or years of delay, many cities have pushed vigorously for the opening of school houses and yards after school hours, the reservation of non-traffic streets during certain hours for play purposes, and the planning of public markets to be available for play use after market hours. Due to the same impulse 1913 has seen the opening of some new school buildings, the best adapted for recreation use of any that have yet been built.

The first stage of park development in this country was the provision of one big park; the second stage was the provision of a series of large parks; the third was the welding of the series of parks into a system by connecting boulevards; the fourth has been the provision for the wider use of the parks, often by installing elaborate apparatus and field houses. During the year this stage has been further developed, especially in Chicago, by the outlining of a plan for the distribution on all kinds of public property of a larger number of recreation centers specialized for different age groups.

Increase in Self-Support.—The year has seen an attempt to work toward the matter of self-support in a larger way. Late in 1912, at the American Civic Association meeting the Superintendent of Parks of Hartford, Conn., outlined his plan of self-support of parks from refreshment and checking revenues, a plan on which he had been working for several years. In 1913 the Park Department of Cleveland extended the operation of municipal dancing pavilions in the parks, charging 40 per cent. less than the commercial dance halls and coming out several thousand dollars ahead of expenses. The Social Center Committee of New York City conducted a social center in one of the school buildings and demonstrated the possibilities of partial self-support. About 25 per cent. of the expenses of this social center were met by membership dues in clubs and from dances and entertainments.

There is a wide difference of opinion as to the possibilities of self-support of recreation both as to the amount and to the distribution of the source of this self-support. Experience so far is not complete enough to give final conclusions, but the following tentative results seem to have been demonstrated: (1) Children using playgrounds and similar indoor activities cannot be expected to bear any appreciable amount of the expense. (2) There is no reason why adults who are paying considerable sums for commercial recreation should

not pay directly for forms of recreation which they use in public facilities in place of these commercial forms. (3) The expense cannot be distributed evenly so that each department of recreation shall be self-supporting, but revenues from check rooms, refreshment stands, dances and the like must be used not only to cover the expenses of these activities but also of other activities equally, if not more, valuable but less productive. (4) Careful direction is necessary that anxiety for revenue does not lower the quality of recreation.

Recreation Surveys.—The year has been significant both for the spread of recreation surveys as a part of larger social surveys and also for the introduction of a new type of survey, known as an efficiency study, to show whether a given recreation system was turning out a satisfactory quantity and quality of work. A survey in Detroit showed the bearing of different types of congestion of population on the distribution of private play areas. It showed that with the highest density of population the trouble comes from lack of private play space; with high middle grades of density, from the distribution of such space, large enough in total amount but cut up into too small individual areas for play use; and with low middle grades of density, from failure to clear, grade, and supervise private play space in vacant lots. Efficiency studies of recreation have been made for the Board of Estimate and Apportionment of New York City and in Rochester, N. Y., of the work of both school and park boards from which a new plan of administration was outlined to secure greater efficiency. From these studies are gradually emerging standards for judging correctly quantity and quality of work being done for unit costs.

Enough surveys have been made in widely separated cities to bring out certain very striking common facts. Among them are these: from 40 to 70 per cent. of the children in cities are doing nothing outside of school hours; from 50 to 70 per cent. are on the streets; there is less in the way of wholesome play for girls than for boys; the presence of public playgrounds and recreation centers means little unless they are well supervised, since children had rather be on the street than in a poorly supervised center.

Training of Recreation Workers.—In respect also of the training of recreation workers there is a curious analogy between the history of recreation and the history of education. Prior to the growth of normal schools teachers were trained in institutes and by local superintendents. That is the chief method in recreation at present. Special training courses in normal, physical training, and social workers' schools, however, are gradually developing. In the Fall of 1913 the New York School of Philanthropy raised its scattered training courses in recreation to the dignity of a separate department with a man trained in practical recreation administration at its head, giving his entire time to this subject. Another advance was the opening for the first time of an institute for recreation workers prior to the annual Recreation Congress. The courses were limited to those actually engaged in recreation work, and took up the technical problems of administration, activities and equipment from the standpoint of the person actually directing recreation work.

This growth in special training has marked with added clearness the distinction between physical training and recreation leadership. To the knowledge of activities of a playground or recreation center, the leader must add what is known as the "social point of view," namely, the ability to see the recreation needs of a neighborhood, analyze their causes, and mold his programme to meet these needs.

Rural Recreation. — Owing to the fact that it has become apparent that the high cost of living is partly due to the exodus from rural communities and that this exodus is partly due to uncomfortable living conditions and lack of facilities for wholesome recreation, attention has been turned to the problems of rural recreation from economic as well as social reasons. Owing to the multiplicity of movements in rural recreation, many of them local in character, only two or three of the most significant can be mentioned. One of these was the

School for Rural Social Workers held at the Massachusetts Agricultural College for two weeks during the Summer, with courses for rural recreation leaders. A study of the efficiency of the rural school is in progress in Ohio. While not complete, the report of certain counties studied has been issued during the year and shows the need of social centers and branch library stations in the schools as well as vocational guidance and the care of backward children. During the year the founder of the Harmon Foundation has offered $5,000 to each of any five towns in Ohio of a population of less than 7,000 to aid in the establishment of a permanent playground and gymnasium adequate for the needs of the community and costing at least $10,000. This is important as showing the recognition of the need of smaller communities for permanent recreation facilities. The state Board of Education of Virginia during the year issued a bulletin on the development of recreation activities in connection with rural schools, especially in connection with county school fairs. (See also XXXIV, *Education.*)

There has been an important growth of play activities in connection with various Chautauqua circuits. A few years ago play leaders were introduced chiefly as caretakers for the children while their parents were attending lectures. The year 1913 has seen the introduction of "junior week" prior to the regular Chautauqua gatherings. During this preliminary period the children are organized into play groups. While these "junior weeks" are largely for advertising purposes they present great possibilities, since the various Chautauqua circuits already reach 2,000 small towns throughout the country. A number of permanent playgrounds in rural communities have resulted from these play weeks.

Commercial Recreation.—During the year the National Board of Censorship has maintained and increased its influence over motion-picture films. There has also been a considerable growth of local inspection of films which promises much, not as a rival activity, but as a method of coöperation for extending and enforcing the work of the National Board. The chief objects of this local inspection are to censor the 10 or 15 per cent. of films not covered by the National Board, to compel the cut-outs ordered by the National Board, to prevent surreptitious and dishonest use of the National Board's sanctioning stamp, and to enforce more specific standards called for by local conditions but not feasible in a country-wide censorship.

The year has been marked also by the increased use of moving pictures by non-commercial agencies, such as schools, churches and recreation centers. This has become peculiarly important for children, owing to the nature of the moving-picture business. While moving-picture shows are the cleanest form of commercial recreation and an immense improvement on cheap forms of recreation 20 years ago, the very nature of the *clientele* of most moving-picture shows makes it impossible to care especially for the moral and recreational needs of children. Investigations have shown that attending moving-picture shows is an important part of the recreation life of most city children, but that the attendance of children under 16 years of age is not an important part of the moving-picture business, averaging only about 20 per cent. of the total attendance.

There has been steady progress in the control of dance halls by inspection but no novel extensions. The regulation of pool and billiard halls continues to be chiefly by ordinances enforced by the police, although the placing of them under inspection similar to that of dance halls and moving-picture shows is being discussed in various cities.

Standards of Legal Regulation.—New York City has passed a very complete moving-picture ordinance. The National Board of Censorship has published a "model ordinance" for moving-picture shows. From the experience of many cities certain common features of a good ordinance for any form of commercial recreation are beginning to stand out clearly. (1) Places of commercial amusement should be licensed not primarily for revenue but for control. (2) The place rather than the owner should be licensed so that the revoking of a

license may not be circumvented by transfer to a business associate. (3) Some form of inspection is necessary to enforce regulations for safety, health and morality.

Pageantry.—While strictly speaking a pageant is a civic activity rather than recreation, pageants are of interest to recreation because they are being used to give meaning to public occasions and are thus raising the standards of recreation on festival days. The year has been marked by the beginning of the American Pageant Association founded at the Boston Conference on Pageantry and having its headquarters at present in New York. Some of the pageants of the year of especial interest were at Worcester, Mass. (American Childhood), Meriden, N. H. (Education in the New Country Life), Darien, Conn. (Residential Community), and that at Hollis Hall at Harvard University. Some of the pageants of previous years were repeated, showing their value as a recurring form of celebration. The most distinctive advance in pageantry as an art is shown by the fact that in 1913 for the first time pageants have been composed as a whole and "treated as a new and distinct art form comparable with the symphony and opera."

Recreation Meetings. — The recreation congress of the Playground and Recreation Association of America was held at Richmond, Va., in the Spring and the Social Center Association of America conducted "social center week" at Chautauqua, N. Y., during the Summer. These meetings emphasized the affiliated, but distinct, purposes of these two movements. The first seeks to develop all forms of wholesome recreation by helping communities to organize recreation systems, supported by public funds, administered by some part of the local city or school government and headed by a secretary or superintendent chosen by the local community. The second urges the civic value of the social center, including recreation, but particularly emphasizes the use of the social center as a place for free civic and political discussions and the growth of adult civic clubs.

Other Movements.—The Boy Scouts and Camp Fire Girls have both made remarkable advances in promoting wholesome recreation for boys and girls in their teens (*A. Y. B.*, 1912, p. 377). The Educational Drama League, which grew out of the Children's Theater and a group of young wage earners under the name of the Educational Players, has been organized. The object of the League is to extend the opportunities of amateur dramatic expression and to teach teachers how to use the dramatic instinct for the greatest entertainment and educational advantage. The armories in New York City have been opened more widely for recreational use. The People's Institute in that city has made important investigations into the relation of delinquency to recreation and also of the relation between immigrant life and recreation.

The movement begun in 1912 for a public celebration of Christmas and New Year's Eve has been extended. These celebrations attempt, by the public singing of civic and religious, but non-sectarian, songs and by outdoor concerts, to substitute something with historic significance for the meaningless roystering of street crowds.

International Aspects. — The year has been marked by the maturing in America of a proposal for the organization of an international committee of 50 on playgrounds and recreation, with one member from each important nation and headquarters in New York. The reaction on Europe of American playground and recreation development has been particularly interesting because of the historic debt of the United States to the old world countries. The German kindergarten movement of the last century promoted the growth not only of kindergartens in the United States but also the appreciation of the significance of play in the life of children. The influence of England has been chiefly through its stimulus to social settlements in America, which have always seen the bearing of recreation on social problems. Part of this debt is now being paid, especially to Great Britain and its dependencies, by the return of suggestions from the more highly organized recreation systems of this country.

VOCATIONAL EDUCATION AND GUIDANCE

ARTHUR D. DEAN

State Legislation.—During the year three states, Pennsylvania, New Jersey and Indiana, made provisions for state-aided vocational education. New York amended its education law to provide for state-aided evening vocational schools and part-time or continuation schools. Wisconsin amended the continuation-school law so as to provide for instruction for four hours a week for 30 weeks instead of five hours a week for 32 weeks. Connecticut extended a law which formerly provided for vocational education in only two cities of the state to make it possible for all cities to have state-aided vocational education. In Massachusetts the law relating to reimbursement for evening work in household arts went into effect.

The principle of giving state aid to stimulate and encourage communities to carry on vocational education seems to have been firmly established. The amount of the aid given over and above the amount apportioned toward the support of general education implies that provision for vocational instruction has been written into the laws of these states for distinct and definite purposes apart from those of general education.

The education laws of New York, Massachusetts, Indiana, Pennsylvania and New Jersey provide for agricultural, household-arts and industrial education and recognize such instruction when given in day, part-time or continuation, and evening schools. Illinois and Michigan considered legislation along the lines of these states. California passed a law providing for a state Board of Education with a deputy commissioner in charge of industrial education. Steps have been taken to present vocational-instruction legislation to the legislatures of Michigan, California, Ohio and Missouri when they next meet.

National Legislation.—The Page bill, which has been before Congress for the past six years, designed to encourage instruction in agriculture, the trades and industries and home economics in secondary schools, by maintaining instruction in these vocational subjects in state normal schools and in extention departments in state colleges of agriculture and mechanic arts, and to appropriate national funds and regulate its expenditure in the various states of the union, finally passed the Senate during the final session of the Sixty-second Congress but was defeated in the House. The wide publicity given to the vocational-education movement through the agitation for national aid resulted, however, in the introduction of a resolution (S. J. Res. 5) in the extra session of Congress, providing for a commission of nine persons to investigate the need for Federal aid for vocational education and to report to Congress on Dec. 1, 1913, or as soon thereafter as possible. This resolution has passed the Senate, but has not been acted upon by the House.

National Movements for Vocational Education.—The National Society for the Promotion of Industrial Education as a promoting agency, bringing to public attention the importance of industrial education as a factor in educational development in the United States, has made great strides during the year. It has become a constructive agency standing for sound principles and policies, which experience has justified, and aiding state and local authorities everywhere to put them into effect. The society has been engaged during the year in leading the agitation at Washington for national aid for vocational education; setting up a bureau for registration of teachers of vocational work; establishing close and helpful working relations with national organizations which are directly or indirectly interested in vocational education; and setting up declarations of principles and policies to be followed by state legislation. The vision included in these principles and policies is as follows: first, the state should have the care and responsibility for the training and educational welfare of all children until they become 16 years of age; second, no child under 16 years of age should be permitted to go to work unless he is at least 14 years of

age and has reached a prescribed minimum educational standard which should not be less than that necessary to meet the test for entering the sixth grade of the regular public schools or its equivalent; third, all children between 14 and 16 years of age should be compelled either to attend school or to enter employment and when not employed should be required to return to school; fourth, local communities should be authorized by law to decide either by a referendum to voters or by the action of a local board of control, whether children between 14 and 16 years of age employed during the day, should be required to attend part-time classes for a period of not less than four hours a week out of their working time; fifth, as fast as conditions will permit, we should move in every state in the direction of state-wide compulsory part-time education for those between 14 and 16 years of age who are employed as wage-workers.

The Chamber of Commerce of the United States of America has made official inquiry as to how this national body can be helpful in furthering vocational education. It has gained inspiration from the work of various local chambers of commerce. For example, in Columbus, O., the Chamber of Commerce secured an amendment to the state law permitting the establishment of technical and trade schools. The Commercial Club of Bloomington, Ill., assisted in securing a bond issue of $250,000 for the interest of vocational education. The Buffalo Chamber of Commerce raised $10,000 to establish a vocational bureau to act in coöperation with the schools of that city. In Dayton, O., in coöperation with the Bureau of Municipal Research, the Chamber of Commerce joined in an educational survey of the city schools with special reference to the needs of vocational education.

A National Vocational Guidance Association has been organized, an outgrowth of an informal and tentative organization of persons interested in vocational guidance in the country. Its programme of effort includes: a survey of social needs as represented by occupational activities, which means the intensive study of occupations, including their problems, needs, limitations and possibilities for workers within them; the study of human capacity or talent in relationship to its development in rendering a maximum of social service through occupational activities, which includes an intensive study of individuals whereby there may be discovered their capacities, possibilities, and limitations for efficient service through the respective occupations; and the provision of means by which the appropriate adjustment of discovered capacity to needs and opportunities for its appropriate use may be made.

The National Society of Corporation Schools has been organized with the avowed purpose of providing a means for the interchange of ideas and expressions and through this interchange to prevent, if possible, the costly mistakes in the organization and administration of new corporation schools.

Vocational Instruction.—The year has been marked by actual developments, not only by new types of instruction, but by increased efficiency in all types of vocational instruction. The beginning has been made in placing on a firmer foundation the selection and training of teachers for state-aided vocational schools. The National Society for the Promotion of Industrial Education has made an exhaustive report on the certification and training of such teachers.

Pratt Institute has established a course for training through evening instruction, mechanics who are employed during the day and fitting them for the special demands of vocational schools. Boston is training teachers for evening continuation schools. The State Normal College at Albany, N. Y., Buffalo, N. Y., Normal School, and the University of Wisconsin have evening courses fitting employed men to become teachers. The idea of giving short unit courses in evening trade extension and part-time trade extension schools, in place of the more general industrial work as formerly conducted by these schools, has made great progress.

There has been a nation-wide movement for the establishment of local part-time or continuation schools for employed children between 14 and 16

years of age who would ordinarily be required to attend evening classes when they are in no condition to receive instruction properly. Attendance upon these classes varies from four to eight hours a week and the instruction supplements in most cases the practical work carried on in the employment in which these children are engaged. Chicago, Boston, Providence, Cincinnati, Buffalo and New York City have made notable advances in this direction. The state of Wisconsin has made marked progress in its state-wide development of day continuation schools.

Beginnings have been made in the construction of a programme for vocational work for women and girls. The National Society for the Promotion of Industrial Education has appointed a woman secretary to promote this phase of vocational education throughout the country.

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EUGENICS

H. H. Laughlin

The Science of Eugenics.—Eugenics as a science is largely concerned with the understanding of the forces governing five things, namely, human heredity, mate selection, differential fecundity, differential survival, and differential migration. As a vital social agency its activities in bringing about the ends that its studies demonstrate to be eugenically desirable, are directed mainly along three general lines: (1) promoting the diffusion of the knowledge of human heredity in order that such knowledge may make hereditary potentialities assets in mate selection among the better classes; (2) encouraging operable laws for limiting cacogenic marriages; (3) promoting the enactment of operable laws for the segregation or sterilization of individuals of known hereditary defect of serious nature.

Eugenics is a biological science the principles of which society will make use of as rapidly as careful first-hand investigations of the facts of human heredity and other racial agencies are brought to light. It now occupies a place in science quite similar to that held by agriculture a few years ago, in that it is now the newest of sciences, although it is one of the oldest of arts. The value of good blood has always been appreciated, but just now the manner of inheritance of specific traits is being worked out with such accuracy that the study of human heredity and its practical application becomes a science.

The Year's Progress.—In America the year 1913 witnessed a development of both the science of eugenics and the popular interest in its application, greater than that ever before

experienced by a nation in a single year. The noteworthy events of the year have been:

1. The building of a new office building for the Eugenics Record Office at Cold Spring Harbor, the gift of Mrs. E. H. Harriman. This building will be used solely for carrying on the work of this new institution in its purpose of serving eugenical interests as a clearing house, and in carrying on original investigations in human heredity and other eugenical factors. The Eugenics Record Office was originally established on Oct. 1, 1910, with funds given to Dr. C. B. Davenport by Mrs. Harriman. In March, 1913, there was organized for the direction of the scientific work of this office a board of scientific directors, consisting of Alexander Graham Bell, chairman, William H. Welch, Lewellys F. Barker, Irving Fisher, E. E. Southard, and Charles B. Davenport, secretary and resident director.

2. The provision by John D. Rockefeller for the salaries of the research workers in eugenics for six additional institutions for the socially inadequate classes. The work is directed jointly by the Eugenics Record Office and the collaborating institutions, namely, the St. Lawrence State Hospital (insane), Ogdensburg, N. Y.; the Institution for the Feeble-minded, Columbus, O.; the Worcester State Asylum (insane), Worcester, Mass.; the Norwich Hospital for the Insane, Norwich, Conn.; the Johns Hopkins Hospital, Phipps Clinic (insane); and the State Institution for the Feebleminded of Western Pennsylvania, Polk, Pa. These joint studies have now been inaugurated by 29 different state institutions for the socially inadequate classes.

3. The provision by Mrs. Huntington Wilson for a lectureship in eugenics. The person selected for this position will give lectures on eugenics at the various universities and social centers of the country, and will assist in the organization of eugenics societies. This work is a development of the series of lectures provided by Mrs. Wilson for American universities during 1913.

4. The passing of sterilization laws by five states, namely, North Dakota (March 13, Ch. 56), Michigan (April 1, Act 34), Kansas (April 29, Ch. 305), Oregon (June 3, File 56), and Wisconsin (July 30, Ch. 693). Besides these new statutes, the existing sterilization laws of Iowa (April 19) and California (June 13) were revised and strengthened in keeping with the principle of practicability and with more direct eugenical ideals. The Oregon law was revoked by referendum on Nov. 4 by a vote of approximately five to four. Sterilization is now authorized by law in 12 states. (See also IX, *Criminal Law;* and XVIII, *Prevention.*)

5. The selection of New York City for the meeting place of the second International Eugenics Congress, which will meet in the Fall of 1915. The first congress was held in London, July, 1912.

6. The recognition of eugenics as a science and social instrument for the first time in the classification scheme of the Panama-Pacific Exposition.

7. A healthful growth of interest in eugenics on the part of the American public, not least important of which is the clarification of the conception of the methods and facts concerning the new science of eugenics by the press and the ministry. This development is, in itself, one of the most valuable assets of the year to eugenics, for it insures a more sympathetic treatment of the subject by the people at large.

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THE LABORATORY IN SOCIAL RESEARCH

HENRY H. GODDARD

The Place of the Laboratory.—The laboratory in social research is a means for studying the individual, usually the socially delinquent individual, in an intensive manner, such as is otherwise impossible. The application of laboratory methods to the social problems is in recognition of the fact that the delinquent person is a human being of many and varied mental traits who in his relations to others is actuated by many diverse motives, and that only by an appreciation of these traits and motives can society hope to deal justly and successfully with him. By laboratory methods the delinquent is placed under experimental conditions where his actions are simplified or analyzed and more easily understood. Just as the psychological laboratory gave a tremendous assistance to the study of psychology and made vast contributions to our knowledge, so the laboratory in sociological research is accumulating new facts on the social problems and giving us data whereon we can base action and proceed on rational lines toward the elimination of many social evils.

Sociological Laboratories in the United States.—The idea of a laboratory for social research seems to have originated with Edward R. Johnstone, Superintendent of the Training School for Backward and Feeble-minded Children, at Vineland, N. J. He established in his institution a laboratory for the study of the problem of feeble-mindedness in all its relations, social as well as mental and physical. The idea quickly proved its worth and other laboratories were established, first in institutions for the feeble-minded, later in institutions of other kinds. At the present time laboratory methods are being used in the study of the feeble-minded, the insane and the criminal, and in prisons, reformatories and juvenile courts. Among the institutions employing this method may be mentioned the New Jersey State Village for Epileptics, Skillman, N. J.; the Juvenile Psychopathic Institute in connection with the Juvenile Court at Chicago; the Bedford Reformatory for Women, Bedford, N. Y.; Sleighton Farm, the Philadelphia reformatory for girls; the State Home for Girls, Trenton, N. J.; the institutions for the feeble-minded at Faribault, Minn., Glenwood, Iowa, Waverley, Mass., and Lincoln, Ill.; the reformatory at Concord, Mass.; the juvenile courts of Newark, N. J., and Philadelphia, Pa.; the McLean Hospital for the Insane at Waverley, Mass., and the Government Hospital at Washington, D. C.

The legislature of Ohio has authorized the establishment of an institution for the detention and study of all children who come before the Juvenile Court and whose cases are sufficiently serious to require commitment to some institution. Such children instead of being committed to a reformatory, institution for the feeble-minded or insane hospital will be sent to this "clearing house," where they will be studied for a period of weeks and then assigned to the appropriate institution for care and training during the period of commitment.

Scope and Results of Laboratory Researches.—The methods employed in these laboratories vary somewhat with the laboratory and the type of social problem involved. In general the work includes a study of the mental, moral and physical condition of each person, together with his heredity and environment. The study of the individual is carried on by means of observations of the daily life by psychological study of mentality by means of questions and tests; by physical examinations and studies along medical lines, such as tuberculin tests for tuberculosis, Wassermann tests for syphilis, studies of the condition of

the ductless glands, and by observations and experiments of the moral attributes of the individual. In many cases field workers are employed to visit the home community of the individual and thus learn the social, moral, mental and physical conditions of the parents and relatives. All this is used in the final summing up of the individual's condition and his relation to the community.

The results so far obtained from such laboratories are both general and special. In general it has been learned that a large percentage of the persons who make our social problems are to a greater or less degree irresponsible, which may be either because of lack of intelligence, or because of bad environment. The condition of limited intelligence may be due either to an inherited trait or an acquired condition. For example, laboratory studies have shown that a large percentage of criminals are so mentally defective as to be unable to realize the criminal character of their acts. A large percentage of paupers are unable to make a living on account of lack of sufficient intelligence to earn a living wage. A large percentage of prostitutes are mentally defective and can neither control their instincts nor realize that such a life is a social offence.

Studies of the environment and heredity of these persons is showing that while both these factors enter into the situation, they enter in proportions quite different from those we have usually accepted. For example, the laboratories at Vineland, Skillman and King's Park Hospital, are finding that heredity plays an enormous part in feeble-mindedness, epilepsy and insanity, respectively. Dr. William Healy, at the Psychopathic Institute in Chicago, finds that various forms of epilepsy play a very large part in the causation of juvenile delinquency.

Laboratory Methods and Equipment.—An instrument of extreme value and one that is being increasingly used in these laboratories is the French system of testing intelligence devised by Alfred Binet and Theodore Simon, the so-called measuring scale for intelligence. While not absolutely diagnostic in all cases, partly because we do not yet know all of its possibilities, as well as its limitations, yet in the hands of those who are experienced, it is by far the best means yet devised for determining the degree of mentality of an individual and his consequent responsibility and capacity. When the results obtained by its use are corroborated or modified by information obtained in other ways, we have a fairly complete and correct understanding of the individual and a logical basis for his treatment.

The equipment of these laboratories varies with the character of the work to be done and the people to be studied; it varies also with the person in charge. Some directors of laboratories use very little material; they find that a comfortable room in which they can sit down and talk with the individual is all that is necessary; others use more or less of the machinery or apparatus of the psychological laboratory, such as the ergograph for testing fatigue, to discover whether these delinquents are individuals who are in a chronic state of fatigue; or the algometer, to find out whether they are especially obtuse to pain; the tapping machine, the ataxiagraph or the automatograph to show whether they have normal control over their muscles; the psychometer to discover the condition of their emotional life; and the anthropometric apparatus to learn whether their physical growth and functioning are normal.

The research laboratory at Vineland, N. J., is probably the most extensive in the world. It comprises three important divisions. In the psychological division the mentality of the inmates is studied by two trained psychologists and several assistants, including field workers who investigate heredity and environment. In the medical division a highly trained physician studies the physical condition with a view to determining ultimately whether the mental abnormality discovered by the psychologists has physical abnormalities underlying it. This examination includes not only observations on the living, but in the case of death an autopsy permits the discovery of anatomical peculiarities which would not otherwise

be recognized, or it may confirm the diagnosis made during life. The third division is that of biochemistry, where a highly trained biochemist with several assistants studies the physiological condition of defectives, again with a view to discovering whether the mental abnormality runs, not only through the structure, but the functioning of the various organs. Several abnormalities in this direction have already been discovered.

The laboratory of the Juvenile Psychopathic Institute of Chicago relies largely upon what may be called the oral method; that is to say, the examiner wins the confidence of the child and by adroit questioning succeeds in drawing forth from him the motives and incidents which have led up to the offence for which he has been committed. The laboratory at the Bedford Hills Reformatory devotes itself in a similar way to fallen women.

The advantage which the laboratory has in such cases over the prison, the juvenile court or any of the agencies employed to reform fallen women lies in the element of time. Many of these delinquents will not talk freely at first, and not until after a long acquaintance and an inspired confidence; but eventually even the most hardened may be led to reveal a great deal about themselves and the causes which have led to their downfall. Thus information is obtained which could never be obtained in any other way.

THE DRUG PROBLEM

WILLIAM JAY SCHIEFFELIN

The Cocaine Habit.—Although the morphine habit is far more extensive and the use of opium as an indulgence is of far greater volume, the cocaine habit has recently commanded attention, because of the avidity by which it is acquired and because it creates criminals, and crazed forms of violence often result from it. The progress that has been made toward its repression has been through penalizing illegitimate sale by enacting and enforcing state laws and municipal ordinances, but it remains to coördinate these laws and also to control the importation, manufacture and interstate commerce in the drug through a Federal act. The Food and Drugs Act has had a salutary effect in preventing the sale of proprietary medicines containing cocaine, and the state laws are checking the spread of the evil, but the work has only begun; the estimate, in the report of the U. S. Opium Commission, that 20,000 oz. of cocaine would satisfy the demands of surgery in the United States, while 120,000 oz. are put to improper use, is probably true.

Federal Legislation.—While in comparison with inebriety the proportion of drug victims is small, yet the tragic effects make the restriction of the sale of cocaine, morphine and opium essential. The U. S. Opium Commission and the Bureau of Chemistry of the Department of Agriculture, with the coöperation of the National Associations of Wholesale and Retail Druggists, the American Medical Association, and the American Pharmaceutical Association, have studied the question and are advocating measures to repress illicit traffic. A proposed Federal law, introduced by Representative Harrison (N. Y.), provides that all who deal in cocaine, opium or morphine shall register with the Collector of Internal Revenue and pay a license fee of $1.00, and that they shall keep a record of all their purchases and sales which shall be open to such officials, Federal, state or municipal, as shall be charged with the enforcement of laws or ordinances; thus the taxing power is invoked to trace the consumption of the drugs. The bill further provides that it shall be unlawful to send or transport any of the drugs to a person not registered and who has not paid the license fee; thus the interstate-commerce clause is invoked to confine the commerce in these drugs to legitimate channels. President Wilson sent a special message to Congress urging the enactment of the Harrison bill, which passed the House of Representatives by a large majority. It was favorably reported to

the Senate Committee by a special sub-committee in October, but report to the Senate was delayed until the regular session.

The Harrison bill is the work of men who have for a number of years tried to provide effective restriction of the traffic in narcotics. It will reduce the sale of these drugs and will cause trouble and expense to the druggists, nevertheless they favor the legislation.

The New York State Law.—A New York state law, which took effect July 1, 1913, is thorough and drastic. It provides an elaborate plan for the control of the sale and possession of cocaine. Sales may be made only to pharmacists, drug manufacturers and dealers, physicians, veterinarians and dentists. Every sale must be recorded with full details as to amount, date, name of the purchaser and the clerk who made the sale, and how and by whom delivery was made, and all cocaine must be kept, with two exceptions, in a place specified in the record of sale. The two exceptions are of sales under physicians' prescriptions and of certain very limited quantities which may be carried by a physician, veterinarian or dentist for use in his profession. The dentist or veterinarian can buy only from the manufacturer or wholesaler.

This plan approaches the ideal law for checking the abuse of cocaine. Its success in New York City is reported in the New York *Tribune* as follows:

> The value of the new law is evident when the figures are compared with those of former years. In 1912 only 102 cases were brought in by the police. Fifty-one defendants were acquitted. Under the new law in six months in Special Sessions and General Sessions there have been 131 cases disposed of, resulting in 120 convictions.

THE LIQUOR PROBLEM

FERDINAND C. IGLEHART

Federal Legislation.—The most important event of the year connected with the liquor problem was the passage of the Webb-Kenyon bill to prohibit the illicit interstate shipments of intoxicants into dry territory (*A. Y. B.*, 1912, p. 396). The partial nullification of state laws by the transfer of liquors from wet into dry territory caused the temperance forces to unite in 1911 to secure the introduction of the Kenyon-Sheppard bill. On the transfer of Representative Sheppard (Tex.) to the Senate, Mr. Webb (N. C.) fathered the bill in the House. On Feb. 8, 1913, the Judiciary Committee of the House reported the bill and by the adoption of a special rule, it was considered the same day and passed by a vote of 239 to 65. The Senate promptly passed the Kenyon bill, amended to read exactly as the Webb bill and on the following day the House concurred in the Senate bill. President Taft toward the close of the session vetoed the bill, giving as his reason his belief in its unconstitutionality, but the bill was repassed over his veto by a two-thirds majority in both Houses of Congress. It is understood that this law, if held constitutional, will destroy from 15 to 20 per cent. of the liquor business in the United States. (See also I, *American History.*)

Congress also passed the Jones-Works Excise bill for the District of Columbia, which will go into effect on Nov. 1, 1914, and which, by its provisions, will abolish one-half of all the drinking places of the capital. On July 1, 1913, the 35 saloons that existed in the Canal Zone were closed by an order of the Isthmian Canal Commission, which refused to issue licenses for the sale of liquor.

Consumption of Intoxicants.—The Commissioner of Internal Revenue reports that in the fiscal year 1913 there were withdrawn for consumption, 143,220,056 gal. of distilled spirits made from fruits and grain, and 2,022,611,864 gal. of fermented liquors. The report shows that the Government tax on distilled spirits amounted to $157,542,061.75, and on fermented liquors to $65,245,544.40. These figures show an increase over the production and consumption of fermented and distilled liquors for the year 1912, but the statistics show that the increase is in the licensed districts of the country. From these

figures it appears that the United States is the largest beer-drinking nation of the world, consuming 200 million gallons more than Germany. It is, next to Russia, the largest consumer of distilled liquors in the world.

Status of Liquor Laws.—Despite the enormous amount of liquor made and consumed, the saloon has been expelled from two-thirds of the geographical area and one-half of the population of the country, mostly within the last 20 years. The no-license territory includes largely rural population. Of the nine dry states, Georgia with one and Tennessee with two are the only ones that contain cities with 100,000 population or over. No-license prevails generally in the states that have the largest proportion of native-born population. North Carolina, Georgia, Mississippi, Tennessee, Virginia, South Carolina and Alabama have less than one per cent. of foreign-born population. Arkansas has 1.1 per cent., West Virginia and Kentucky 2.3 each, Louisiana 3.8, Oklahoma 3.9, Indiana 5.6, Texas 5.9, Kansas 8.6, Maine 13.4, and North Dakota 35.4 per cent. The reason why the Dakotas and Minnesota have so much prohibition territory with so many foreigners is that they have a large Scandinavian population which is unfriendly to the liquor traffic. There has been no change in the nine prohibition states during the year. The last legislature of Arkansas passed a law requiring a majority vote of white people, men and women, of any precinct to secure a license to sell liquor, which is said to make it impossible to procure a liquor license in the state. There have been legislative and local wet and dry contests in most of the states, now one side and now the other being successful.

Sunday Opening of Saloons.—The liquor interests have insisted that the cosmopolitan population of the large cities made it proper to open the saloons on Sunday or on certain hours of that day and they have asked various state legislatures to grant that right. In the New York legislature a bill which would have allowed saloons to open on Sunday afternoons in New York City came within a very few votes of passage. One of the strongest reasons given for opening saloons on Sunday was that the law could not be enforced in large cities. In answer to a letter written to the mayors of the 39 largest cities of the United States, it was learned that 14 have what might be called a lax enforcement of the Sunday law and that the other 25 cities enforce their Sunday-closing laws. The 14 cities having the lax enforcement of laws are: New York, Chicago, Cleveland, San Francisco, Milwaukee, Cincinnati, Newark, N. J., New Orleans, Jersey City, Rochester, Toledo, Syracuse, Scranton and Patterson. The 25 cities that enforce the Sunday closing law are: Philadelphia, St. Louis, Boston, Baltimore, Pittsburgh, Buffalo, Washington, Los Angeles, Minneapolis, Kansas City, Mo., Seattle, Indianapolis, Providence, Louisville, St. Paul, Denver, Portland, Ore., Columbus, Worcester, Richmond, Omaha, Fall River, Dayton, Grand Rapids and Hartford.

International Study of the Liquor Problem.—In September the fourteenth International Congress on Alcoholism was held at Milan. Forty countries were officially represented, 38 governments sending accredited delegates.

The first meeting of the newly-formed International Committee for the Scientific Study of the Liquor Question was held in Paris on Jan. 27 to 29. Delegates to the number of 43 representing Austria, Belgium, France, Germany, Great Britain, Russia, Switzerland and the United States were present. The American committee was represented by its secretary, John Koren, and the Federal Government designated Consul-General Mason of Paris to attend and report the meetings. A general programme of procedure was adopted. Among the questions to be studied are: Does alcohol possess any nutritive properties? What is the relative influence of the forms in and customs under which alcohol is consumed? What are the principal causes and effects of alcoholism? The American committee is represented on the executive committee by Mr. Koren, its secretary. The officers of the American committee are William H. Taft, honorary president, Clinton Rogers Woodruff, acting

chairman, John Koren, 25 Pemberton Square, Boston, secretary.

The Prohibition Movement.—The ninth convention of the World's Woman's Christian Temperance Union was held in Brooklyn, on Oct. 23 to 28. Thirty-five countries were represented by 43 delegates. The delegates from Norway and Sweden reported that their governments had voted appropriations for the temperance education of their children. At the close of the world convention, the Woman's Christian Temperance Union of America held its fortieth convention at Asbury Park with 708 delegates. The convention declared for national constituional prohibition. At the national and international conventions, the promotion of woman's suffrage, though not by militancy, was favored.

The Anti-Saloon League of America celebrated its twentieth anniversary in a convention at Columbus, on Nov. 10 to 13, with 4,000 registered delegates. The convention declared for national constitutional prohibition and appointed a thousand delegates to visit Washington on Dec. 10 to request such a bill. A new constitution and by-laws were adopted, and Bishop Luther Wilson was elected president, and Rev. P. A. Baker national superintendent of the league. Reports showed that 35,000 pulpits were open to the League and that a million dollars were contributed during the year.

On Nov. 14, the allied temperance forces of the country, including representatives of most of the temperance societies, churches, Y. M. C. A.'s, etc., met as a Council of One Hundred, laid out an educational programme, and promised their earnest coöperation in the plan for a nation-wide prohibition proposition. The Prohibition Party, the Good Templars and other temperance societies, held their annual meetings.

On Dec. 10 an amendment to the Federal Constitution, asking for the submission of national prohibition to the ratification of the states, was introduced in the United States Senate by Senator Morris Sheppard of Texas, and in the House of Representatives by Richmond P. Hobson of Alabama. Two thousand Anti-Saloon League delegates from every state in the Union and about a thousand delegates from the Woman's Christian Temperance Union marched to the Capitol steps where public exercises were held, during which Dr. P. A. Baker, National Superintendent of the Anti-Saloon League, handed the amendment to the Constitution to Senator Sheppard.

Bibliography.—U. S. Internal Revenue report; excise reports of various states; *Anti-Saloon League Year Book; Year Book of the United States Brewers' Association; American Prohibition Year Book;* temperance reports of various denominations, Catholic and Protestant.

SYNDICALISM

JOHN SPARGO

The word "syndicalism," so lately introduced into our language that quite recent editions of our most authoritative dictionaries do not contain it, is the French equivalent of the English term, "trade unionism." The labor union in France is called a *syndicat*, and *syndicalisme* connotes the theory or policy of the *syndicat*. Transplanted to the soil of our English speech, the word has gained a new value. It no longer means trade unionism merely, but rather a particular kind of trade unionism. As in most countries, the trade-union movement of France is rather sharply divided. There are unions which are extremely conservative and unions which are extremely radical. The word "syndicalism," in popular usage throughout the world outside of France, refers to the revolutionary type of trade unionism.

This type of unionism is represented in the United States by the Industrial Workers of the World, popularly designated "the I. W. W.," and familiar to the public by reason of its aggressive policy in connection with numerous strikes (see also XVII, *Labor*). The names of such of its leaders as William D. Haywood, Joseph

Ettor, Carl Tresca and Arturo Giovanitti constantly appear in the daily press in connection with vigorous strikes and are, in consequence, widely known.

What are the characteristic features of this revolutionary type of labor union? Wherein does it differ from the form of unionism with which we are familiar? Before we reply to these questions, a word of warning is necessary. Syndicalism is hardly capable as yet of rigid and exact definition. It is a new movement, or at least a new development of an old one, and its theories and policies are hardly crystallized. Moreover, syndicalist methods and theories differ somewhat in different countries, the differences corresponding to, and resulting from, differences in the economic conditions prevailing. Thus, in Italy and France, countries in which small workshops and factories prevail, autonomous unions, each confined to a single craft, and not infrequently of purely local character, are favored. In the United States and in England, on the other hand, local unions and unions on craft lines are bitterly opposed by syndicalists. Their ideal is industrial unionism, the organization of all the workers in a given industry into one big union, having no regard to degrees of skill or training, and the federation of all the industrial unions into one great organization. The fighting motto of the I. W. W. is "One Big Union."

These differences notwithstanding, there is sufficient unity of purpose and method to warrant a composite picture. In all lands the syndicalists aim at the abolition of the present capitalist system of production, and its replacement by a new social order based upon coöperative production. In all lands, likewise, syndicalists teach that the political State is doomed to extinction, the only form of government in the new social order being the administration of production, distribution and exchange by the workers through their unions. Finally, in all lands syndicalists oppose the notion that the change to a better social order can be brought about, or even materially aided, by parliamentary action. They rely upon what is called "direct action" as opposed to the indirect action of politics. Thus analyzed, syndicalism is seen to be an amalgam of socialism, anarchism and trade unionism.

The principal forms of "direct" action are the strike, the boycott and *sabotage*, the last named being a principle of action rather than a method. It is capable of an almost unlimited variety of applications. The principle is the obstruction of industry and the impairment of the efficiency of industrial processes. This may take the form of teaching the workers to slacken the pace so as to lessen the output; the wilful destruction or damaging of machinery or goods; the deliberate confusion of business by carefully planned "mistakes"; discrediting the employer by revealing unpleasant facts about his business methods, and so on through a long catalogue of similarly ingenious devices.

Syndicalism naturally comes equally into conflict with the established form of trade unionism and with the political socialist movement (see *Socialism, infra*). It is strongest in France and Italy at present and in this country draws more recruits from the natives of those countries than from people of other nationalities. It appears to enlist most readily the unskilled laborer and thrives best where the workers lack political power or have lost hope in political action.

It is impossible to give any estimate of the numerical strength of syndicalism. It is probably greatly exaggerated. Recent reports from France indicate a marked decline of strength, and at a recent "International Congress" of Syndicalists the attendance was insignificant. The membership of the I. W. W. is very small when compared with that of the American Federation of Labor and is declining, according to recent reports. We must remember, however, that the whole theory of the policy of the I. W. W. is that reliance must be had, not upon the majority of the workers, but upon the militant and desperate minority.

Much of the most significant literature of syndicalism is in the form of small pamphlets and leaflets, which

are not readily accessible to the ordinary reader. There is a most extensive foreign literature on the subject, the French and Italian works being specially numerous and important. For American readers the following list contains the most important works: *The Labor Movement in France*, by Louis Levine, a very illuminating study of French Syndicalism; *The New Unionism*, by André Tridon, notably chiefly for its citations from syndicalist authorities; *American Syndicalism, The I. W. W.*, by John Graham Brooks, a journalistic estimate of the I. W. W.; *Syndicalism, Industrial Unionism and Socialism*, by John Spargo, an exposition and criticism from the standpoint of Marxian Socialism; *The I. W. W.: Its History, Structure and Methods*, by Vincent St. John; *Direct Action and Sabotage*, by Wm. E. Trautman; *Industrial Union Methods*, by Wm. E. Trautman. The last named are three pamphlets, of considerable interest, published by the I. W. W. at Newcastle, Pa.

SOCIALISM

ALGERNON LEE

General Status of the Movement.—In every European country during 1913 the Socialist party has spent much of its energies in combating the demand of the governments for larger armies and navies. Only to a small extent have they been able to check the growth of armaments; but they have roused public opinion, strengthened and solidified the opposition to imperialist and militarist policies, and gained strategic advantages for the struggles that may ensue either from actual war or from the breaking strain of military expenditures upon the economic resources of the principal nations.

The syndicalist tendency which for two or three years seemed to threaten a schism in the international Socialist and labor movement has greatly declined. Gustave Hervé and his colleagues in France have broken with the anarchists and joined the Unified Socialist party; within the General Confederation of Labor the opposition to parliamentarism has become weaker, while a new opposition to "insurrectionism" is manifesting itself. In the United States the unsuccessful silk workers' strike in Paterson has given a setback to the Industrial Workers of the World (see XVII, *Labor*), and the Socialist elements have made further headway within the unions affiliated with the American Federation of Labor. The International Syndicalist Congress held at London in October, the first of its kind, was a fiasco; only 35 delegates were present and only a part of these represented by actually organized bodies.

In Germany, Austria, and some other countries the number of dues-paying members has grown but slightly or even somewhat declined; but this seems to be due chiefly to the widespread unemployment caused by the economic disturbances that accompanied the Balkan War, and to the migration of masses of workmen in search of jobs. It has been offset by favorable results in almost all elections held during the year.

Great Britain.—The socialistic tendency in the British labor movement has grown appreciably stronger. The trade unions show an increasingly militant spirit and are also closing up their ranks by amalgamation of unions of related trades. On the political field the relations between the Labor party and the Asquith and Lloyd George Government have grown much cooler; the Government has made but niggardly concessions and the Labor party has stiffened its demands. At the end of the year another effort was being made to effect a thorough unification of the Socialist forces by bringing the British Socialist party and other independent organizations into the Labor party.

The municipal elections held in April and November in many parts of Great Britain gave the Socialist and Labor elments a net gain of 200 seats in local boards and councils, following up a net gain of 70 seats in 1912 and of 115 in 1911. In a number of cases additional Socialist vic-

tories were prevented only by a close fusion between Liberals and Conservatives.

Germany.—The Socialists have concentrated their efforts largely on the fight against militarism and in favor of reform of the Prussian electoral system on a basis of equal suffrage, secret ballot, and direct election. Having only 110 of the 397 members of the Reichstag, they could not defeat the bill adding about 130,000 men to the army and about $75,000,000 to the annual war budget; but they forced minor amendments, and especially succeeded in throwing a good share of the cost on the richer classes (see also IV, *Germany*). The Prussian Diet elections were held in May and June. In spite of open voting and the three-class system which gives two-thirds of the voting power to 13 per cent. of the people, the Socialists increased their representation from six to 10.

The annual party congress took place at Jena in September. Reports showed an increase of only 12,738 in the party membership, which now numbers 982,850, including 141,115 women. On the other hand, the circulation of party papers had grown rapidly. By a vote of 333 to 142 the congress rejected a resolution declaring for a general strike to compel revision of the Prussian electoral system. By a vote of 336 to 140 it approved the conduct of the Reichstag fraction in voting for the amended budget in order to carry the taxation clauses mentioned above. This does not, however, indicate an abandonment of the class-struggle attitude of the party. The Socialists insist on choosing their own time and avoiding a premature conflict, and meanwhile they are doing all they can to increase and train their forces against a possible crisis. The death of August Bebel (Aug. 13), while felt as a very heavy loss, has not led to any change in the tendencies of the party.

France.—In France also the Socialists in parliament and among the people protested unavailingly against the larger army appropriations and the extension of the term of service from two to three years (see also IV, *France*). Reports presented to the party congress which met at Brest in March showed that the membership had risen from 62,657 to 68,903, the largest annual gain since 1910. The number of communes (cities, villages, and townships) in which the Socialists have a majority had grown from 197 to 294, while they have minorities in 400 others, with a total of 3,000 councilors; the whole number of communes, large and small, in France is about 36,000. Especially important was the reconquest of Brest, Roubaix, and Toulouse. The election for members of the General Councils of the 83 departments in August, and also several parliamentary and municipal by-elections during 1913, gave slight net gains.

Russia.—The Socialist parties in Russia still suffer from the internal dissensions incident to a largely underground movement. Nevertheless, the revival of activity among the rapidly growing class of industrial wage workers, which began in 1911, still gathers strength. In spite of the efforts of police, both the number and the magnitude of the political and economic strikes and the mass demonstrations of working people have steadily increased.

Italy.—The conflict between "orthodox" and "reformist" Socialists, which had been growing sharper for several years, led to a definite split late in 1912. Of the 40 Socialist Deputies, 25 adhered to the party and 15 seceded and formed a separate Reformist party. The regular Socialists, in and out of Parliament, uncompromisingly opposed the militarist and imperialist policies of the Liberal government and coöperated with the trade unions in numerous strikes for improvement of conditions of labor. The Reformists, while avowing the same ultimate aims, voted with the Government on many points, especially with reference to the war of conquest in North Africa.

On government initiative a new electoral law was passed more than doubling the number of persons entitled to vote. The majority of the newly enfranchised being illiterate peasants, it was thought that this, together with the Reformist secession, would cut down the Socialist strength in the next Parliament. It proved quite otherwise, partly through the fact

that many of the illiterates did not go to the polls. The general election occurred in October. The total vote was 4,380,000, as compared with 3,250,000 in 1909. The regular Socialist party got 825,000 votes, as against 339,000 in the last election, before the split; their representation in the Chamber was increased from 25 to 53. The Reformists elected 25 of their candidates. (See also IV, *Foreign Affairs.*)

Austria-Hungary.—The working classes of the Austrian Empire suffered terrible hardships in 1912 and 1913 from the depression of industry caused by the Balkan disturbances and aggravated by the mobilization of the troops of the Dual Monarchy. Socialist gains and losses about balanced each other in a number of by-elections for the Reichsrath and the Diets of various states, and the organized membership of the party declined somewhat. But net gains were made in municipal elections, the party papers increased their circulation, and it is expected that the year 1914 will see the Socialist forces stronger than ever.

Belgium.—After long deliberation and a careful husbanding of forces and strengthening of discipline, the Socialist organizations, party, trade unions, and coöperative societies, called a general strike in the hope of forcing the Government to abolish the plural-voting system, under which possessors of large incomes and of academic degrees cast two or three ballots each; at the last election this system gave 64 per cent. of the votes to 42 per cent. of the voters. The strike began on April 13. Within a few days it involved over 400,000 workmen, out of a total population of 7,500,000. Perfect order was maintained; but the business of the nation was almost completely paralyzed, and the money loss to the capitalists was estimated at nearly $2,000,000 a day. On April 22 the Government proposed and Parliament adopted a resolution providing for a special commission to prepare a bill for the reform of the electoral system, with a pledge that plural voting would be eliminated. The workingmen, through a special congress chosen for the purpose, accepted the pledge and called the strike off on April 24. The commission was appointed some weeks later, but had not reported at the end of the year. (See also IV, *Foreign Affairs.*)

Netherlands.—The general election in June gave the Socialists 144,375 votes (nearly 19 per cent. of the total) as against 82,000 in 1909. In the old Parliament they had seven members; this time they elected 18, but have since lost three in by-elections. They also won two seats in the Senate, where they never had any before. The new House of Representatives consists of 40 Protestant and Catholic Clericals, 38 Liberals (two wings), and 15 Socialists. As no one party had a majority there was difficulty in forming a new cabinet. The Queen invited the Socialists to join with the Liberals, offering them three portfolios. After full discussion at a special party congress, the Socialists rejected the proposal, declaring that they were willing to support a Liberal Government in so far as its policy was progressive, but would not bind themselves to uphold it in all it might do. Municipal elections were held throughout the kingdom in July, and the number of Socialists in city councils was trebled.

Denmark.—Extension of the suffrage was the chief issue at the general elections in May. The Socialists polled 107,015 votes, as compared with 98,718 in 1910, and elected 32 instead of 24 Deputies. The Radicals also gained, while the Conservatives and the so-called Liberals, the party formerly in power, lost heavily.

In the new Folkething there are seven Conservatives, 44 Liberals, 31 Radicals, and 32 Socialists. No party having a majority, the King asked Liberals, Radicals, and Socialists to form a coalition ministry. Both Liberals and Socialists refused. A Radical cabinet was then formed, with assurances of Socialist support on condition of keeping its promise to democratize the suffrage. The municipal elections in February gave good results to the Socialists. In Copenhagen they increased their vote from 50,482 (in 1912) to 55,164, and elected 27 of the 55 councilmen. The party congress in February showed a steady growth of the membership, which then numbered 48,344. Among

its important actions was a resolution forbidding party members to belong to syndicalist organizations. The syndicalist tendency was repudiated by a decisive vote also at the trade union congress in April.

Sweden.—The Socialist party and the trade unions are slowly but steadily recovering from the effects of the economic crisis of 1908 and the disastrous general strike of 1909. The party's organized membership grew during the year from 58,000 to 62,000. It has 64 representatives out of 230 in the lower house and 13 out of 143 in the upper house of the Rigsdag. During the year the Socialist fraction made a strong fight for a legal minimum wage and eight-hour day, but was defeated on both propositions.

Finland. — The Finnish Socialists have continued their slow but solid growth. The election in August gave them 217,778 votes (almost 43 per cent. of the total) and 90 out of the 200 members of the Diet, in which they had 86 representatives before. Of the Socialist Deputies 13 are women, while there are eight women representing other parties. The gain was made at the expense of the Conservatives or Old Finns.

Bulgaria.—A general election early in December gave the Socialist party heavy gains. The two wings, "broad" and "narrow," now have 47 members in the Sobranje, where there was but one Socialist before. Exact figures of the vote and precise information as to the attitude of the two wings are not yet at hand.

Argentina.—In 1912 the Socialists won their first two seats in the Argentine House of Deputies. In April, 1913, they elected two more Deputies and one Senator.

United States.—The spring and fall municipal elections in various parts of the country and the partial state elections in November brought both gains and losses in the Socialist vote, with an apparent slight balance in its favor. The city of Schenectady, which was carried in 1911, was lost in 1913, in the same way that Milwaukee was lost in 1912; the Socialists increased their vote materially, but the Republicans and Democrats combined to defeat them. In Butte, on the contrary, the Socialists reëlected Mayor Duncan and increased their representation in the council. The straight Socialist vote in New York City was about 5,000 higher than in the general election of 1912. In Paterson the Socialist ticket ran second, the Republicans getting 45 per cent., the Socialists 31, and the Democrats 24. (See also VII, *Municipal Government.*)

Walter Lanfersiek was elected National Secretary of the Socialist party in May, in place of John M. Work. The office remains at 111 North Market St., Chicago. The dues-paying membership fell off heavily in the latter part of 1912 and the early months of 1913, but has been rising since June and is now well above 100,000.

The party spent much energy and money during the year in assisting strikes of garment workers in New York, silk workers in New Jersey, coal miners in West Virginia and Colorado, and copper miners in Michigan.

Bibliography. — Among the important books of the year are Hillquit's *Socialism Summed Up;* Benson's *The Truth About Socialism;* Bebel's *My Life;* Murdoch's *Ethics and Economics;* Orth's *Socialism and Democracy in Europe;* Walling's *Larger Aspects of Socialism;* Schlüter's *Lincoln, Labor, and Slavery;* Simkhovitch's *Socialism versus Marxism;* Spargo's *Syndicalism, Industrial Unionism, and Socialism;* and Rubinow's *Social Insurance.*

MOTHERS' PENSIONS

C. C. Carstens

At the beginning of 1913, two states, Illinois and Colorado, had laws specifically authorizing the payment of certain sums of money from public funds to enable a mother fit to bring up her children to keep them with her. During 1913, the following 17 additional states passed such laws: California, Idaho, Iowa, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, Ohio, Oregon, Pennsylvania, South

Dakota, Utah, Washington and Wisconsin. This sudden and widespread movement in legislation may be traced to the conviction that the individual family home is best for the child and that nothing should take the place of the mother's care if she is physically and morally fit to bring up her children. With this conviction was coupled the belief that many children were being seriously neglected because of the mother's necessity of working away from home to earn the family's support. The title mothers' pensions is not a satisfactory one for such aid, for pensions, in the proper meaning of the word, are deferred payments for service already rendered and have no reference to the needs of the individual to be pensioned. Mothers' pensions, however, while generally urged as payment for services and as acts of simple justice, are generally estimated and paid on the basis of the need existing in the households.

As early as 1908, without a special law, certain private children's charities of San Francisco devised a way of using the money which they were drawing from the state or county treasuries for the support of children in the care of the Juvenile Court, for the maintenance of the mother's own household. These sums became considerable in amount in a few years. In 1911, Missouri passed a statute allowing the Juvenile Court of Kansas City alone to order payments to be made to a mother for the support of her children in her own home in lieu of their commitment to a public institution. In the same year the Funds to Parents Act, very materially amended in 1913, went into force in Illinois, but very few payments have been made outside of Chicago. The administration of the law was here also added to the other duties of the Juvenile Court which was at that time insufficiently equipped for its regular tasks. Colorado adopted a statute to the same end by popular initiative at the general election in November, 1912.

Although the experience of Kansas City and Chicago did not furnish a sufficient basis to warrant the immediate wide extension of the experiment, the year 1913 has seen mothers' pensions undertaken in many different forms. Those favoring this experiment in legislation point to the breaking up of families because of poverty or niggardly home support as their justification, but other social reformers view with alarm this extension of public charity to additional groups in our communities, including widows, deserted wives, wives of prisoners or of husbands confined in insane hospitals, or, as in Michigan, divorced women and unmarried mothers, who have previously managed without mothers' pensions. In a number of jurisdictions the laws are already being tested as to their constitutionality.

The amount of money to be paid varies from $6.25 a month for a widow's child in California to $15 a month for a mother with one child in Illinois and $10 for each child where there is more than one, while in Colorado, Massachusetts and Nebraska no maximum has been established. The administration of these funds is principally of three sorts. In Illinois and 15 other states it has become a part of the duties of the juvenile or other county or district court. In New Jersey and the city of St. Louis it is undertaken by a public Board of Children's Guardians. In Massachusetts alone the town and city overseers of the poor already dealing with needy families are adapting their work to these new needs and the state Board of Charity has been given the power to supervise and standardize the work of administering the pension system.

SOCIAL WORK OF THE CHURCHES

CLINTON ROGERS WOODRUFF

The Federal Council of the Churches of Christ in America.—The Social Service Commission of the Council has been actively engaged during the year in carrying out the platform adopted at the second quadrennial meeting at Chicago (*A. Y. B.*, 1912, p. 378). The important developments of the year,

according to the secretary, have been: the development of several new denominational social service agencies, and the better general efficiency in the development of this work; increasing attention to the rural problem, as especially indicated by the appointment of a committee on the church and country life with Gifford Pinchot as chairman; the campaign for "one day's rest in seven" for industrial workers, which brought about action by several state legislatures; and the bringing together of the various denominational secretaries in a secretarial council, and the making of these associate secretaries of the Commission of the Federal Council.

The Commission is now engaged in a detailed study of the industrial situation of Paterson, N. J., the scene of the long industrial conflict during the year (see XVII, *Labor*). It has already issued the following social-service bulletins: "The Country Church," the result of an investigation by Charles O. Gill and Gifford Pinchot of the committee on the church and country life; "Spiritual Culture and Social Service," by Charles S. Macfarland; "The Christian Ministry and the Social Order," edited by Charles S. Macfarland; "Church Federation," the story of the Inter-Church Federation meeting in New York in 1905, an initial and preparatory session of the Federal Council, edited by Elias B. Sanford; "The Social Creed of the Churches," by Harry F. Ward, and "The Gospel of Labor," by Charles Stelzle.

The secretary of the Commission is the Rev. Charles S. Macfarland, Clarendon Building, New York.

Roman Catholic Social Service Activities.—A very considerable amount of work is being done by Roman Catholic bodies, but these activities have not yet been centralized, though the tendency to do so is becoming more marked every year. The first work of the American Federation of Catholic Societies was to bring the various organizations together in annual convention. A Social Service Commission has been created, not to do any work of organization, but to endeavor first of all to develop in a literary way the Roman Catholic philosophy of social service; second, to bring about conferences of existing social work; and third, to lead to the establishment of a federation school of social service and to organize national lecture courses on social work and other activities. In the opinion of the secretary, the best accomplishment of the year is the public opinion created in a great many of the leagues of Roman Catholic women toward the centralization of their social works. The Commission has issued the following pamphlets:

"The First Catholic Social Service Conference"; "Socialist Science Bankrupt"; "What Shall Our Catholic Societies Do?"; "Relations Between Employers and the Employed"; "Why Socialism is Opposed to the Trade Unions"; "Need of an Organized Christian Force in the American Labor Movement"; "Woman's Suffrage, A Social Problem"; "Who Lies?"; and "The Christian Manifesto." The secretary of the Commission is Rev. Peter E. Dietz, 503 Murray Avenue, Milwaukee. (See also XXXI, *Religion.*)

The Joint Commission of the Episcopal Church.—On Oct. 1, 1912, the Joint Commission, after two years of preliminary organization, opened an office in the Church Missions House in New York City. Here a special social service reference index, containing already several thousand items on the various phases of social reform and including a considerable pamphlet literature, has been organized. The effort of the Commission has been centered upon the education and organization of the Church's constituency for effective action with reference to social problems. Largely through its efforts there are at present 74 diocesan social service commissions and a growing number of parish organizations devoted to community service. Five of the missionary departments have also organized officially or informally for social service within their jurisdictions.

As a means of education of the future leaders of the Church the Commission is recommending the introduction of courses of social instruction and the provision for elementary social service in the Sunday school and in the theological seminary. It has also issued for educational pur-

poses within the past two years several pamphlets and leaflets, including "A Social Service Programme for the Parish"; "Social Service for Diocesan Commissions"; "A Model Canon for Diocesan Social Service Commissions"; and "Social Service and the Episcopal Church." Of these nearly 20,000 copies have already been distributed. The triennial report to the General Convention in New York in October, 1913, has also been printed by the Commission.

For the purpose of furthering its educational propaganda the Commission arranged in connection with the General Convention of 1913, a social service week, including a series of four conferences on various phases of the Church's relation to social welfare; visits to social institutions and agencies in New York City and vicinity; special sermons on social service in the local churches by visiting clergy, mostly members of the various diocesan social service commissions; and an exhibit showing the work of the Joint Commission, diocesan commissions, parish agencies, and one or two other coöperating organizations. The proceedings of this social service week have been issued in pamphlet form. The field secretary is Rev. F. M. Crouch, 281 Fourth Avenue, New York.

Other Denominations.—The Methodist Federation for Social Service maintains a bureau of information, speakers' bureau, and reading and study courses; Rev. Harry F. Ward, 2512 Park Place, Evanston, Ill., is the secretary. The Baptist Department of Social Service and Brotherhood is a sub-division of the American Baptist Publication Society organized to suggest ways whereby Christian men may become socially effective, and cooperate with similar bodies; Rev. S. Z. Batten, 1701 Chestnut Street, Philadelphia, is secretary. The Congregational social service agency is the Congregational Brotherhood of America, Henry A. Atkinson, secretary, 19 S. La Salle Street, Chicago. Presbyterian social service is administered by the Presbyterian Board of Home Missions. A Department of Church and Country Life is in charge of Rev. Warren H. Wilson, 156 Fifth Avenue, New York. The Unitarian Social service is carried on through a department of the American Unitarian Association, of which Elmer S. Forbes, 25 Beacon Street, Boston, is secretary.

XVII. LABOR AND LABOR LEGISLATION

LABOR

LEONARD W. HATCH

STRIKES AND LOCKOUTS

The Strike Record.—The year 1913 was marked by an increase in number of strikes and lockouts. Figures for the entire country to demonstrate the truth of this are lacking, but one fragment of statistical evidence available at the time of writing, coupled with the indications of newspaper reports, are clearly of that import.

This evidence consists only of the returns for New York State, published in the quarterly *Bulletin* of the State Department of Labor. New York is, however, the leading industrial state of the country. Figures for only the first six months of the year are available; those for 1913 in comparison with the four preceding years are as follows:

First Six Months of	Number of Strikes	Employees Directly Concerned
1909	93	30,777
1910	163	44,063
1911	118	43,357
1912	111	31,499
1913	195	124,573

It is the first half of any year which produces the larger portion of the year's disputes. The last Federal report on "Strikes and Lockouts" shows that in the five years 1901-5, 60 per cent. of the strikes occurred between Jan. 1 and June 30. Bearing this in mind, it is manifest above that in New York 1913 was a year of large increase in labor disputes. It cannot be said that New York conditions are an absolutely certain index for the country as a whole, but a comparison of the records in the Federal reports on strikes and lockouts for the 25 years 1881 to 1905 (no report has been issued since that for 1905) shows that the changes from year to year (increase or decrease) have for the most part been the same for the entire country as for New York State.

The greater frequency of strikes and lockouts in 1913 is not to be interpreted, however, as marking the year as abnormal in respect to labor disputes. On the contrary, such increase may be said to represent the normal, or at least the usual, accompaniment of a year characterized by active business conditions (although in the last few months of the year a considerable slackening of business activity was evident), and hence with a good demand for labor and a rising cost of living (see this topic, *infra*), the latter furnishing naturally the stimulus and the former the favorable opportunity for wage earners to seek better terms of employment. In noting that the greater number of disputes involving suspension of work cannot be chronicled as extraordinary in view of general conditions, it is implied that there was nothing extraordinary in the character of the great mass of the year's controversies. The more notable points in this part of the year's labor history, therefore, are to be found rather in certain individual disputes or particular features, either novel or exceptional, in such episodes. Leading all other controversies of the year in such features, perhaps, was the strike of silk workers at Paterson, N. J.

Strike of Silk Workers in Paterson, N. J.—A general strike of workers in

the broad-silk mills of Paterson began on Feb. 25. Prior to this a strike in one mill had occurred late in January in opposition to the introduction of the so-called four-loom system, and it is from this earlier strike that the beginning of the dispute may properly be dated. Shortly after Feb. 25 the strike extended to the ribbon factories and then to the dye shops. The number of establishments involved was reported as 293 and the number of employees has been given as 25,000 to 27,000, the entire silk industry of Paterson being involved.

The demands formulated by the strikers several days after the general strike began included the abolition or non-introduction of the three- and four-loom system in place of the existing one- or two-loom systems and an increase of wages for the broad-silk workers, an increase of wages for the ribbon weavers, a minimum wage and better sanitary conditions for the dye-shop hands, and a general eight-hour day. The central issue, both in its significance for the industry and the workers and because it concerned the largest number of the latter, was the three- and four-loom system. Mechanically, these systems involved the tending by each worker of three or four looms instead of one or two as before, together with an increase in automatic devices on the machines. But the significance of the change for both industry and worker was deeper than this alone would indicate. The three- or four-loom system is used for the production of cheaper grades of silk. Previously the Paterson industry had confined itself almost entirely to the higher grades using other systems. But the newer three- and four-loom system had been successfully developed and used in other localities, notably in Pennsylvania, where a much cheaper grade of labor was employed than in the higher-grade mills in Paterson, and where, with this combination of more highly developed machinery and cheaper labor, a greater prosperity had fallen to the industry than in Paterson. The introduction of the new system in Paterson, therefore, really marked the entrance of the Paterson employers into the field of cheaper silk production and competition with these other localities in that field. Hence to the workers the change seemed to bear the menace not only of displacement of workers by machinery, and possibly severer strain of work at equal pay in tending more machines, but the more serious and far-reaching menace of employment of cheaper labor and general lowering of wages.

Upon this central issue was joined a struggle which for stubbornness has rarely been equaled, lasting as it did till the close of July, a period of five months, during most of which the entire industry in Paterson remained idle. Repeated efforts to bring about a settlement, made by both public authorities and private agencies in the city, proved wholly unavailing, and the struggle finally ended by the virtual exhaustion and surrender of the strikers by return to work. According to the most reliable press reports, the strikers lost above $5,000,000 in wages, with probably an equal loss to employers, besides heavy losses to other business interests in Paterson.

What gave the dispute widest notoriety, and its most significant as well as novel aspect, was the kind of organization and leadership which appeared among the strikers. This was the organization known as the Industrial Workers of the World. It was charged that this organization, coming in from outside, was the real instigator of the strike, but the statements of impartial investigators indicate that this was not the case, and that it was not until the strike was already imminent or actually begun that the I. W. W. became an important factor in it. In other words, so far from creating the strike, it stepped in to seize an opportunity for its propaganda presented by the conditions above described, which had created a situation between employers and employees already strained to the breaking point. In any case, the conspicuous fact is that the leadership of the strike was assumed by the I. W. W., that all the strikers joined that body, and that the latter succeeded in holding the entire body of strikers solidly together month after month during the dispute. The solidarity of the strikers in their allegiance to this organization during the dispute is especially attested by the fact that

the older and more conservative American Federation of Labor attempted to step in and organize the workers with a view to settling the dispute by arbitration with the employers, who had intimated their willingness to deal with the latter organization, and that this attempt failed completely.

The significance of this leadership of the strike by the I. W. W. lies in the character of that organization, representing as it does organization of wage earners along industrial instead of trade lines, and, more especially, advocating in this country the revolutionary doctrines and methods better known in Europe as syndicalism. Readers unfamiliar with the latter are referred to the special article on "Syndicalism" elsewhere in this volume (Department XVI) for a full presentation of its doctrines and methods. Suffice it here to put it briefly that the central principle of this doctrine is the taking over of the control and operation of the means of production by wage earners, to be accomplished by direct action against employers. It is not surprising to find, therefore, that the entrance of the I. W. W. into the dispute had the distinct effect of adding to the familiar aspect of industrial disputes as controversies over the terms of a collective bargain, somewhat of the character of a revolutionary struggle between opposing doctrines of industrial control. So far as the I. W. W. is concerned, every strike in which it can operate represents, in accordance with its philosophy, an opportunity to push forward its fight for control, and very consistently the national leaders and resources of the organization were for the time being centered in the Paterson dispute. And it was this element which, as indicated by the statements of the latter, accounts for the persistently uncompromising attitude of the employers throughout the dispute.

It is not possible here to go into details of the extreme attitude or action taken by any of the parties affected by the dispute, whether employees, employers, or the public. They may easily be found in the press reports of the time. As a matter of fact, lawless action such as occurred at Paterson presents no new spectacle in labor disputes under a different kind of leadership, but rather indicates only continuance of familiar problems in industrial relations. What is more important is to emphasize the distinction between what the Paterson silk workers were striking for and what the I. W. W. leaders were working for, a difference which the startling nature of the latter's doctrine and methods may easily crowd out of view. The great mass of the Paterson silk workers were not striking for the I. W. W. doctrines of industrial control. On the contrary, their issue was simply the familiar and legitimate one of better terms of employment under the existing economic system. The fact of their prompt acceptance and following of the leadership of those for whom the revolutionary propaganda was the main issue, therefore, was less a sign of the success of a revolutionary propaganda than of the absence of any other source of aid in what seemed to them a fight for economic justice. Herein lies the chief lesson and revelation of the Paterson strike. If no more conservative leadership or social agency for improvement of their condition is developed which shall gain their confidence, the increasing number of industrial communities made up, as at Paterson, largely of low-paid workers of foreign extraction, may be expected under economic pressure to offer quick acceptance of the leadership of champions holding revolutionary doctrines.

What adds emphasis to this lesson of the Paterson dispute is the fact that almost exactly the same circumstances and results which reveal that aspect of the strike at Paterson were present in the great strike at Lawrence, Mass., in 1912 (*A. Y. B.*, 1912, p. 403), and appeared also in the smaller but locally notable strike at Little Falls, N. Y., in the fall of 1912.

For fuller accounts of the Paterson strike the reader is referred to special articles in *The Outlook* of June 7 (p. 283) and *The Survey* of the same date (p. 355).

Strike of Coal Miners in West Virginia.—Another of the year's disputes which should be specially mentioned in a review of the year's industrial controversies is the strike of miners on Paint and Cabin Creeks in West Virginia which began in April, 1912,

and was not definitely closed until the signing of agreements in July, 1913, although actual hostilities were suspended in April. What makes this dispute notable is the exhibition it presents of violence, lawlessness, and bitterness as extreme in kind as has been seen in almost any other dispute, fully reviving the picture of an industrial dispute conducted literally on the lines of an armed conflict such as made Homestead and Cripple Creek famous. In the end agreements were signed, that at Paint Creek recognizing the union, the question of recognition having been a fundamental issue, and granting nearly all of the miners' demands, and that at Cabin Creek, though not recognizing the union, granting a considerable portion of the demands. But this pacific appearing settlement was not arrived at until more than a year's bitter warfare had accumulated a total loss, according to a summary in the *Iron Age*, of 13 lives, $2,000,000 to employers, $1,500,000 in wages, $602,000 in contributions of union miners in other states, $500,000 to the tax payers of the state or county, and $10,000 in property destroyed, a total money loss of $4,612,000. So far did this conflict transcend the ordinary circumstances of an industrial dispute that on May 27 the United States Senate passed a resolution calling for an investigation of conditions in the West Virginia coal fields by the Committee on Education and Labor. A subcommittee, consisting of Senators Swanson (Va.), Shields (Tenn.), Martine (N. J.), Borah (Idaho), and Kenyon (Iowa), held hearings in West Virginia during the summer, but the general Committee has not yet presented its report. (See also IX, *Law and Jurisprudence.*)

Strikes of Garment Workers in New York City.—Notable for numbers involved, rather than for any peculiar features in the disputes themselves, were simultaneous strikes in the great clothing trades of New York City, which is the chief center of the clothing industry in the United States. These included strikes of men's garment workers begun on Dec. 30, 1912, of wrapper and kimono makers on Jan. 6, of white goods (underwear) makers on Jan. 7, and of dress and waist makers on Jan. 14. In the strike of men's garment makers 115,000 employees were directly concerned, while in the strikes in other branches comprising women's wear 45,000 employees took part (including 35,000 dress and waist makers), making a total of 160,000 in the garment trades of the city. All of these strikes were to enforce general schedules of union demands, with wages or hours as leading issues.

The most significant feature of these disputes lies in the settlements reached in case of the shirt waist, wrapper and kimono and white goods workers, which seem to open a new régime in the handling of disputes in those industries, as pointed out below in connection with the subject of conciliation and arbitration.

Other Disputes.—Of other strikes of the year there may be noted as having attracted widespread attention a general strike of copper miners in Upper Michigan begun in July and still unsettled at the end of the year, in which the right to organize was the main issue; a strike of coal miners in southern Colorado begun in September for union recognition and likewise pending in December; and a street-car strike in Indianapolis which involved rioting and bloodshed and the calling out of militia, and which was finally settled by the intervention of the Governor.

CONCILIATION AND ARBITRATION

Most conspicuous of the year's events in the field of peaceful collective bargaining as opposed to the method of strike or lockout were the arbitrations of the railroad firemen's, and conductors' and trainmen's demands in the eastern railroad district.

Arbitration of Railway Firemen's Dispute.—On behalf of the firemen on the 52 eastern railroads, demands including an increase of wages as foremost, were presented to the railroads by the Brotherhood of Locomotive Firemen and Enginemen in April, 1912, at the same time as those of the engineers, which were arbitrated in 1912 (*A. Y. B.*, 1912, p. 402). The eastern railroad district includes the

entire territory north of the Potomac and Ohio Rivers as far west as Illinois. In it there are nearly 67,000 miles of main track, handling above 40 per cent. of the traffic of the United States, while the population of the district is over 38,000,000.

Direct negotiations of the parties during 1912 having failed to bring about an agreement, arbitration under the Erdman Act was proposed. This proposal brought forth expressions of willingness to arbitrate from both sides, but at the same time a very strong difference of opinion as to the manner of arbitration. The firemen were in favor of arbitration under the Erdman Act, whereas the railroads proposed an arbitration similar to that in case of the engineers' demands in 1912. In this case, a board of seven members acted under a special agreement drawn up between the parties and not under the Erdman Act. This board consisted of one representative of each side and five non-partisan persons. Under the law the board must consist of three persons, one chosen by each side with a chairman chosen by these two, or failing such a choice, by the government mediators, who, under the law, may, upon request, serve as mediators prior to arbitration. The refusal of the firemen to repeat the style of arbitration in the engineers' case grew out of considerable dissatisfaction which the proceedings and award in that case aroused among employees, the chief criticism being against the unfamiliarity of the five non-partisan members with railroad conditions and against the character of evidence secured by the board, as alleged, outside of the hearings. The railroads, on the other hand, based their objection to procedure under the law on the amount of responsibility, in view of the size of the dispute, resting upon one man as third member of the board, each of the other two members being inevitably representatives of one side.

So solid was the deadlock over this question of the form of arbitration, that it seemed for a while as though a general strike might result. In fact, such a strike had been authorized by a referendum vote of the firemen and seemed only a few hours off when on Feb. 18 the railroads finally, under strong protest, accepted arbitration under the terms of the law. The board appointed consisted of Albert Phillips as representative of the firemen, W. W. Atterbury representing the railways, and Judge W. L. Chambers as chairman. Its award was published on April 24. On the principal question of wages the award was a compromise. The demand for two firemen on certain types of engines, the most important of the other issues, was not granted, but provision for arbitration of individual cases was made. Most of the other demands as to conditions of work were granted.

Amendment of the Erdman Act.—One result of the experiences in the firemen's dispute and the engineers' controversy preceding it, was the introduction in Congress in June of a bill to amend the Erdman Act. The dissatisfaction over the composition of the board provided for in that law, forcibly brought out in the firemen's dispute, has just been noted. Another point which the firemen's case, following upon the heels of that of the engineers, and with a third dispute of equal dimensions raised by demands of the conductors and trainmen in the eastern district already at hand, had served to make clear, was the inadequacy of the mediation provisions of the law. Such mediation work, when requested, was assigned to the chairman of the Commerce Court and the Commissioner of Labor, to be performed in addition to the full work of their regular official positions. The size of the interests, both of the public as well as of employers and employees, menaced by such great disputes as those in the eastern district obviously made the conservation of industrial peace in railway transportation too important a matter to be left as secondary duties of any official. Accordingly, the amendment offered by Senator Newlands, proposed in the first place, with reference to arbitration, to permit the parties to choose between an arbitration board of three members, as before, and one of six members, two chosen by each side and two by these four; and in the second place it proposed to create the independent office of Commissioner of Mediation and Arbitration, who, with

two other government officials, should constitute a Board of Mediation and Conciliation. Both the railways and the employees' brotherhoods aided in drafting this amendment and gave it their support. (See also I. *American History;* and XXII, *Railroads.*)

Arbitration of Railway Conductors' and Trainmen's Dispute.—Even before the question of arbitration of the firemen's demands had been settled, demands of conductors and trainmen in the eastern district through their brotherhood for an increase of wages and other changes in working conditions had been presented to the railways. The latter in accepting under protest arbitration of the firemen's demands under the Erdman Act, had made reference to the pending demands of the conductors and trainmen with the warning: "We desire to put the public on notice as to the crisis that will confront them when these demands are considered by the railroads." This attitude foreshadowed a stubborn dispute, as it proved to be; so stubborn in fact that a referendum vote on the question of a strike, if necessary, to sustain their position was taken by the employees, resulting in a vote little short of 100 per cent. in the affirmative. As in the firemen's case, stubborn difference of opinion as to possible form of arbitration developed, revealing once more the unsatisfactoriness of the existing law. Finally, in July, after prolonged negotiations had failed to open any prospect of peaceful settlement under the existing agencies, the situation became so tense, with a strike apparently at hand, that President Wilson called a conference of representatives of both sides and of party leaders at the White House to discuss changes needed in the law to meet the situation. The result was that the parties agreed that, if the pending amendments of the Erdman Act (above noted) should be passed, they would settle the controversy under the law. These amendments were accordingly promptly enacted by Congress, and the President sent to the Senate for Commissioner of Mediation, Judge W. L. Chambers, who had been chairman of the arbitration board in the firemen's case, and designated Louis F. Post, Assistant Secretary of Labor, and Judge Martin Knapp of the Commerce Court as the other two officials on the Board of Mediation. It was later found that the Assistant Secretary of Labor was ineligible, not being an official appointed by the President as specified in the law, and Royal Meeker, Commissioner of Labor Statistics, was appointed in his place.

After the new board had begun its work two complications arose which, for a time, seemed to present further serious obstacles. One of these was due to the presentation by the railways of a list of grievances which they now demanded should be considered along with the original demands of the firemen, but to the inclusion of which the latter strenuously objected. The other arose from the withdrawal of the Erie Railroad from the negotiations. The board finally succeeded, however, in securing the withdrawal of the new demands of the railways and the adherence of the Erie to the proceedings, and the whole case was finally submitted to a board of arbitration consisting of W. W. Atterbury and A. H. Smith representing the railroads, D. L. Cease and L. E. Sheppard representing the conductors and trainmen, with Seth Low and J. H. Finley, New York State Commissioner of Education, as neutral members. The award of this board was published on Nov. 11 and included as a compromise of the principal question of wages an advance of approximately seven per cent. (See also XXII, *Railroads.*)

Conciliation in Southern Pacific Strike.—A second, though less notable, achievement of the year under the amended Erdman law appears in the settlement of a very brief strike of over 3,000 employees of the Southern Pacific R. R. late in November. Although the strike was not averted, the spirit of the act prevailed within a day or two afterwards, resulting in an agreement to settle the issues by conference of the parties' representatives or, failing such settlement, by reference to the Board of Mediation and Conciliation under the Erdman Act.

Peace Protocols in the Garment Trades.—Notable especially as of promise for the future is the extension of the so-called "protocol" plan

among the garment trades of New York City and to those of Boston. The name of this plan is derived from the designation given to the agreement which terminated the great strike of cloak and suit makers in New York City in 1910. By this was established a permanent system for settlement of grievances or differences by means of a grievance committee, composed of five representatives of employers and five of the unions, to handle minor cases, and a board of arbitration, consisting of one member each chosen by employers and the union and a third representing the general public. So successfully had this plan worked in the cloak and suit industry that quite early in the course of the year's disputes in the other branches of the clothing industry in New York the question of its adoption in the settlement of these was broached, and the plan was finally adopted in the settlements of two of the four, namely, the dress and waist and wrapper and kimono makers' strikes. In both these trades the two features for settlement of differences of the cloakmakers—a grievance committee and an arbitration board—were adopted, following the cloakmakers' model closely. In addition to this there was added in both the above trades, and in the settlement of the white-goods strike as well, another feature which marks a further important new departure in the clothing trades, namely, permanent wage scale boards for the purpose of investigating wages with a view to standardizing and adjusting rates throughout the industry, including the establishment of a minimum wage. Following the establishment of these wage scale boards, there was taken up in the cloak and suit industry a joint investigation of wages with similar purpose in view, though not under an established special board. More unique than the provision for settlement of disputes, however, is a provision for a joint board of sanitary control (see *Health and Safety, infra*).

In Boston brief strikes occurred early in the year in the cloak and suit and waist and dress trades. In the former industry a committee with the assistance of disinterested outsiders (including Louis D. Brandeis and Edward A. Filene, both of whom had been prominent in the negotiations which led to the establishment of the original cloak and suit makers' protocol in New York) made an investigation in Boston and New York City which, on the strength of the more favorable conditions shown in New York City under the protocol, resulted in its adoption in that trade in Boston. Shortly afterwards the system of the protocol was adopted also in the Boston waist and dress industry.

The significance of the establishment and extension of these organized joint agencies for settlement of disputes in the clothing industry lies not so much in any new principle or even form of agency for settlement of disputes involved, as in the contrast between the realization of such highly developed agencies and the inherent difficulties of the industry in the way of their development, due to the large proportion of immigrant labor, the prevalence of piece work and the keenness of competition as to wages which have marked the industry, leading to instability or lack of organization upon which to build substantial agencies for peaceful collective bargaining. Thus far the protocol in the cloak and suit industry has operated to maintain and extend organization in the trade; the newer protocols in other trades have shown a similar tendency.

Commission on Industrial Relations.—The Federal Commission on Industrial Relations finally reached establishment and organization during the year. The nomination of members made by President Taft (*A. Y. B.*, 1912, p. 417) were not confirmed by the Senate. On June 26, 1913, President Wilson announced the following nominees: representing the public, Frank P. Walsh of Missouri (chairman), John R. Commons of Wisconsin, and Mrs. J. Borden Harriman of New York; representing employers, Frederick A. Delano of Illinois, Harris Weinstock of California, and S. Thurston Ballard of Kentucky; and representing employees, Austin B. Garretson of Iowa, John B. Lennon of Illinois, and James O'Connell of Washington, D. C. These nominations were confirmed on Sept. 10.

LABOR ORGANIZATIONS

Of the leading importance and significance in the record of any year with reference to labor is that portion which relates to the efforts of workers themselves by combined action to improve their condition. A general measure of the strength of the labor movement, as these efforts through combination are commonly styled, is to be found in the number of members of trade and labor unions which are the permanently organized exponents of the movement.

Growth of Organized Labor.—The American Federation of Labor combines in its affiliated membership the greater proportion of the union members in the United States. According to a compilation which was made by the New York State Department of Labor (*Bulletin*, September, 1913, p. 408), out of a total of 2,526,000 union members in the United States and Canada (with nearly 136,400 in the latter) at the close of 1912, there were 1,770,000, or 70 per cent., affiliated with the American Federation of Labor. There were 335,000 in railway brotherhoods and 81,600 in the bricklayers' and masons' union, while the remainder was divided up in much smaller numbers among nearly two score other trades with independent organizations. An interesting item among the latter is a membership of 23,000 in the Industrial Workers of the World. Figures are not at hand for the growth of the other organizations in 1913, but for the main body in the Federation of Labor, figures for the year are available in the report of its executive council to the annual convention at Seattle begun on Nov. 10.

For the year ending Sept. 30, there was a gain in the average paid-up and reported membership of the American Federation of Labor between 1912 and 1913 of 225,859. This is an increase of nearly 13 per cent. upon the total for 1912, which was 1,770,145, and brought the total for 1913 very close to the two-million mark, namely, 1,996,004. As a matter of fact, this figure represents an average for the 12 months; at the close of the year the total had passed the two-million mark, and in September amounted to 2,054,526, which is an increase of 213,258 over the membership in September of 1912.

An analysis of the increase in membership shows that while there were few of the 111 national and international unions affiliated with the Federation for which decreases in membership were reported, and no large decreases appear, at the same time the bulk of the increase for the year occurred in a few trades. Gains of 10,000 or more appear in but five trades: mine workers (United) 112,000; garment workers (United and Ladies' Garment) 29,000; carpenters 23,000; machinists 15,000; and hod-carriers and building laborers 12,000. These five, which, with the exception of the hod-carriers, show the largest memberships in the Federation, would account for five-sixths of the year's total gain. Gains in membership of from 5,000 to 10,000 were reported for retail clerks, electrical workers, hotel and restaurant employees, painters, and street-railway employees; and gains of from 1,000 to 5,000 were reported for bakers, barbers, blacksmiths, boilermakers, brewery workmen, steam engineers, stationary firemen, flint-glass workers, lathers, meat cutters, metal polishers, sheet-metal workers, musicians, papermakers, plasterers, printing pressmen, railway carmen, shingle weavers, stage employees, stonecutters, switchmen, teamsters, textile workers, and typographers.

Southern Labor Congress.—A notable event of the year in the field of labor organization was the meeting of the first Southern Labor Congress at Nashville, Tenn., on Sept. 17. This congress has a permanent organization, formed at Atlanta in December, 1912. It is affiliated with the American Federation of Labor, and is composed of labor leaders from the southern states. Its declaration of principles is as follows:

1. We affirm it to be the chief duty of this congress to encourage thorough organization of all classes of workers as the first step toward greater industrial freedom.

2. We, therefore, pledge ourselves to extend all reasonable aid, such as sending our literature to organize the unorganized trades, and assisting to build up those already in existence.

3. We believe in the independence of

craftsmen of all callings, and while conceding the right of each affiliated society to manage its own affairs, we declare it to be the duty of this congress to assist all organizations in defending their rights and in endeavoring to secure better conditions of labor for their members.

4. We affirm one of the main objects of the meeting of this congress to be education and where questions of general interest may be discussed.

5. We will aim to continue this congress where representative men of the labor movement may become acquainted for mutual instruction and improvement; where ideas may be freely exchanged, and where the grave problems of social reform may be debated and analyzed for the South.

6. It shall be the duty of this organization to assist in the public agitation of labor reform principles, and especially the short-hour movement.

7. We recommend the adoption of the initiative, referendum and the recall in effective workable form, without unreasonable restrictions, in both state and municipal governments, and the recall to include judges as well as all other officials.

Though not clearly indicated above, it is reported that uniformity in labor legislation, especially needed in the South, is one of the prime objects of this congress. Aside from this, it is significant of greater activity in the labor movement accompanying the expansion of industry, which, longer delayed in the South by reason of her peculiar circumstances, is one of the notable facts of present-day industrial history, and has given rise to many pressing labor problems peculiar, at least in this day, to that section of the country.

SOCIAL CONCERN FOR LABOR

The concern of society at large for the condition of labor, as a matter either of social justice or of the general welfare, is of course always reflected in labor legislation, which is reviewed elsewhere (see *Labor Legislation, infra*). But legislation represents the final crystallization, so to say, of such concern in definite regulations or institutions. Preceding that stage on all matters of larger moment or fundamental principles, is the period of discussion and formation of public opinion, and in this may be seen the earliest indices of prospective development. It is of importance to note, therefore, some of the signs of the year as to the growth of public concern and the directions in which it is most prominently manifested.

Government Recognition. — Most conspicuous of all in this category this year was the recognition given to labor in the councils of the Federal Government by the appointment for the first time of a Secretary of Labor in the President's Cabinet (see I, *American History*). Another notable manifestation of social concern for labor problems is to be seen in the final appointment and organization of the Federal Commission on Industrial Relations, referred to above under the subject of industrial relations. There may be mentioned in this connection also several state commissions to investigate labor problems with a view to legislation, noted on another page in connection with the subject of labor legislation; these are, however, of narrower significance in the present connection than the Federal Commission dealing with more general questions in a broader way and with a view to general public information as well as possible legislation.

American Committee on Social Insurance.—Forecasting to some extent an important development of public opinion in a direction of special significance for wage earners, which in some phases is already at hand and in others is undoubtedly soon to be reached in this country, are the organization during the year of an American Committee on Social Insurance and the holding of the first American conference on the subject. This Committee was appointed by the American Association for Labor Legislation as the result of consideration of the matter at its annual meeting in December, 1912. Americans are already familiar with discussions of the subject of insurance in connection with compensation for industrial accidents, but the scope of this Committee's work will include not only this branch, but all forms of social insurance against vicissitudes which menace the working man, including sickness, old-age, and unemployment insurance, mothers' pensions, etc. The first step taken by the Committee to awaken public interest was the calling of the first American conference on social insurance in Chicago in June. At this successful meeting important papers and discussions by special students of the subject were presented. These

papers and discussions may be found in the *American Labor Legislation Review* of June, 1913, which contains also a select bibliography on social insurance.

This Committee and the Chicago conference bear a large significance in view of the very important European precedent which they follow. This is the highly successful and influential International Congress of Social Insurance held biennially for 24 years in Europe for discussion and development of opinion in precisely the same field as the American Committee. It is, therefore, of no small moment for the probable development of the American movement that the International Congress is to meet in this country (at Washington) in 1915.

Discussion of the Minimum Wage. —Very conspicuous in public discussion of labor problems during the year has been the subject of the minimum wage. Some of this has already led to legislation (see *Labor Legislation, infra*), but much more widespread than actual legislation would indicate has been the attention given to the subject in the public prints and public discussions. This appears to have been occasioned in part by the newspaper notoriety given to sensational evidence on the relation of low wages to the social evil presented early in the year before the Illinois Senatorial Vice Commission, but more serious discussion, in both popular and scientific periodicals, dealing with general economic and other aspects of the subject indicates very clearly a much broader and more permanent interest in the subject than that aroused by the Illinois episode.

It is not possible to set forth here the various aspects of the minimum wage question or the widely varying views thereupon which have been expressed. As a succinct statement of the theory of the minimum wage, however, suggesting at once both its aims and its problems, there may be quoted here the following statement by Prof. Henry R. Seager summing up his discussion of the theory of the subject in a paper before a joint meeting of the American Economic Association and the American Association for Labor Legislation in December, 1912:

> The economic interest of society requires the payment of living wages to all workers, except, possibly, children learning trades and defectives, who must be treated as wards of the state. In the United States the great majority of industries pay such wages to the great majority of their employees. Starvation wages are only found under exceptional circumstances. Typical of these are home work under the sweating system, and the employment of girls in department stores. For both of these employments the requirements of minimum wages, covering necessary living expenses, would be a distinct social gain. It would increase the health and efficiency of those employed at such wages. It would put a stop to exploitation by grasping employers, and hasten a better distribution of the labor force of the country. Finally, it would compel society to face the problem of caring for the unemployable through insurance or pensions for those who should not be expected to be self-supporting, and through the better training and distribution of those who might be self-supporting if given some assistance. The objections to the plan are mainly practical, and the most convincing answer to these objections is the fact that other countries are actually making minimum-wage regulations effective. (*American Labor Legislation Review*, February, 1913, p. 90.)

See also the following, among others: John B. Clark, "The Minimum Wage," *Atlantic Monthly*, September, 1913; J. Laurence Laughlin, "Monopoly of Labor," *ibid.*, November, 1913; M. B. Hammond, "Judicial Interpretation of the Minimum Wage in Australia," *American Economic Review*, June, 1913, and a series of articles in *Annals of the American Academy of Political and Social Science*, No. 137, July, 1913. A special bibliography on the subject was issued during the year by the Public Library of New York City.

It is not a little significant that in the subjects of social insurance and the minimum wage there are being taken up questions of social regulation to improve the purely economic situation of wage earners, as distinguished from the much more familiar subjects of protection of life and health which have long held chief place in social concern for labor.

HEALTH AND SAFETY

Employers' Welfare Work. — Until quite recently progress in the subject of health and safety has been almost entirely confined to the progress forced upon industry by legislation. Of late, however, there has been another arising element accelerating such progress, and that is an element grow-

ing out of private initiative. The most familiar manifestation of private initiative is in so-called welfare work of employers, which is not confined to matters of health and safety alone, though largely concerned therewith, but extends also to matters touching other aspects of the well-being of employees. In welfare work the distinguishing characteristic is that provision for the welfare of employees entirely beyond or outside of the terms of employment is made voluntarily by the employer moved by humanitarian motives. Such work takes a great variety of forms and varies greatly in extent from establishment to establishment. The year, while offering no spectacular examples, has been one of steady development of welfare work and perhaps one marked by a larger extension of welfare features than any other. The best single source of current information concerning welfare work is the Welfare Department of the National Civic Federation, headquarters of which are in New York City. See also a bulletin of the Federal Bureau of Labor Statistics on "Employers' Welfare Work," issued in May.

The Safety Movement.—A development under private initiative closely akin to welfare work, but bearing a somewhat different stamp in motive, and distinguished by a distinctly separate development, which has to do especially with industrial accidents, is to be found in the establishment and growth of work for the prevention of industrial accidents. The year 1913 witnessed most notable progress in this field. This work has been developed not alone under the spur of humanitarian motives, but very distinctly also from considerations of business economy as well. It is recognized that prevention of accidents is cheaper as well as more humane, especially under the marked tendency of legislation to shift the financial burden of accidents to employers by more radical liability, or by workmen's compensation, laws. This work has been so far developed as to have its special safety departments or experts in many industrial corporations and plants. A new term, "safety engineering," has been coined to designate this work. The secretary of the committee on accident prevention of the National Association of Manufacturers stated in an article published in April, 1913, that 276 members of that organization had during the last year and a half placed a special man in charge of their shop safety work (*Survey*, XXX, 102). Another writer in an article of the same month (*Outlook*, CIII, 942) stated that the "safety first" idea is in operation on 152,000 miles of railroad track, or over three-fifths of the mileage of the United States. So extensive indeed had this work become that there was founded during the year by those engaged in it the National Council for Industrial Safety as an outgrowth of the first Coöperative Congress of Safety held in Milwaukee from Sept. 30 to Oct. 5, 1912. On Sept. 22-25, 1913, the second Safety Congress of this organization was held in New York City, which gave ample evidence, by the attendance and interest displayed, of the growth of the movement during the year.

Of the multiplying literature concerning industrial safety the reader may be referred particularly to the proceedings of the first Coöperative Safety Congress, published by the Association of Iron and Steel Electrical Engineers, and the proceedings of the second Safety Congress, which will doubtless be published by the new National Council for Industrial Safety, and to the monthly magazine *Safety Engineering*, published by the Insurance Press in New York City.

Joint Boards of Sanitary Control.—The year 1913 has witnessed an important extension of what may fairly be regarded as the newest agency, both in form and principle, for the conservation of industrial health and safety. This is the joint board of sanitary control, having to do, as thus far developed, especially with problems of sanitation. The first board of this kind was established in 1910 in the cloak and suit industry of New York City (*A. Y. B.*, 1911, p. 349). In the great strike in that trade in that year questions of sanitary regulations in the shops, as well as terms of employment, were at issue, and by the protocol (the first trade agreement so styled) which terminated the strike there was established as the

most original feature of the agreement a "joint board of sanitary control" to regulate shop conditions as to health of employees. Until 1913 this cloak and suit board remained the only agency of its kind. But in the settlement this year of strikes of garment workers in New York and Boston, which, as noted above, followed the protocol plan of the cloak makers, the joint board of sanitary control feature was extended to the dress and waist and wrapper and kimono trades in New York City and to the cloak and suit and waist and dress trades of Boston, as well as to the fur working trade of New York City in connection with the settlement of a general strike in that trade. This important extension of this unique institution is one of the important developments of the year in the field of industrial health and safety.

The joint board as created by the cloak and suit protocol (and this is closely followed in the other trades) consists of two members named by the manufacturers, two by the unions, and three others to represent the public to be named jointly by representatives of the parties to the agreement or by a referee. The following clause defines the functions and authority of the board:

> Said board is empowered to establish standards of sanitary conditions, to which the manufacturers and the unions shall be committed, and the manufacturers and the unions obligate themselves to maintain such standards to the best of their ability and to the full extent of their power.

It will be seen that in this plan the principle of coöperative action of employer and employee, as distinguished from state action or employer's initiative, is followed, and that in addition the interest of the public is likewise recognized and enlisted. It is the principle of sanitary regulation of industry by coöperation of the three parties concerned, with reliance upon the binding force of a contract agreement of the two responsible parties for its observance. The system embraces essentially both legislation and enforcement.

The members of the cloak and suit board were appointed in October, 1910, and from that date its work has constantly grown in extent and variety. The work has been financed by equal contributions of the parties to the protocol. The first work of the board was a systematic investigation of all shops in the industry made in February, 1911. Another general inspection was made in August of that year, and two such inspections have been made each year since. The extent of the board's field may be gathered from the following figures for these regular inspections:

Inspection	Shops Investigated	Persons Found Working
February, 1911	1,243	36,941
August, 1911	1,738	45,199
February, 1912	1,884	50,326
September, 1912	1,888	51,872
February, 1913	1,800	52,293

In addition to these regular inspections many reinspections have been made, as well as investigations of complaints. Thus from April 27 to Aug. 23, 1913, the number of reinspections was 1,575.

A set of sanitary standards was adopted in July, 1911, and this cooperative sanitary code, including also the subject of safety from fire, is worth reproducing in full as indicating the thoroughness of the board's programme. It reads as follows, as given in the second annual report of the board (p. 22):

1. No shop to be allowed in a cellar.
2. No shop to be allowed in rear houses or attic floors without special permission of the board.
3. Shops located in buildings two stories or more in height must have one or more fire-escapes.
4. All fire-escapes to be provided with ladders to the roof of same house or to an adjoining house; also with full-length drop ladders properly located and adjusted.
5. In all shops which are not provided with automatic sprinklers there should be kept a sufficient number of chemical extinguishers, or a sufficient number of fire buckets, properly located and filled.
6. Special caretakers to be appointed in each shop for the care of the fire buckets, and for their use in case of fire.
7. All openings and exits to fire-escapes to be left unobstructed by tables, machines, boxes, partitions, and iron bars.
8. No doors to be locked during working hours.
9. No smoking to be permitted in workshop.

10. Conspicuous signs to be placed throughout the shop, marking location and direction of exits and fire-escapes.

11. Fireproof receptacles, lined with tin, and having a tin cover, to be provided, in sufficient numbers, for rubbish.

12. Halls and stairways leading from shops to be adequately lighted by natural or artificial light.

13. Stairs to be provided with secure handrails and safe treads.

14. Sufficient window space to be provided for each shop, so that all parts of the shop be well lighted during the hours from 9 A. M. to 4 P. M.

15. Where gas illumination is used, arc lights or incandescent mantles should be used.

16. All lights to be well shaded, to be placed above operatives, and not too near them.

17. At least 400 cu. ft. of space, exclusive of bulky furniture and materials, should be provided for every person within the shop.

18. The shop should be thoroughly aired before and after work hours, and during lunch hour, by opening windows and doors.

19. No coal should be used for direct heating of irons, and whenever stoves are used for heating shops they should be surrounded by metal sheet at least five feet high.

20. Walls and ceilings of shops and water-closet apartments should be cleaned as often as necessary, and kept clean.

21. Floors of shops, and of water-closet apartments, to be scrubbed weekly, swept daily, and kept free of refuse.

22. A separate water-closet apartment shall be provided for each sex, with solid partitions to extend from floor to ceiling, and with separate vestibules and doors

23. Water-closets to be adequately flushed and kept clean.

24. A special caretaker to be designated by the employer to the care of the shop and water-closet apartments.

25. A sufficient number of water-supplied wash-basins to be provided in convenient and light locations within the shop.

26. Suitable hangers should be provided for the street clothes of the employees, and separate dressing-rooms to be provided wherever women are working.

27. Water-closet apartments, dressing-rooms, washrooms, and lunchrooms to be properly lighted, illuminated, ventilated, cleaned, and kept clean.

28. All seats to have backs.

29. All waste materials, cuttings and rubbish must be removed twice a day from the floor of the shop and once a day from the building.

30. In all shops where more than twenty-five persons are employed above the ground or first floor, a fire drill of the occupants of such building shall be conducted at least once in every three months.

31. In every factory building over seven stories or over 90 ft. in height in which wooden flooring or wooden trim is used and more than 200 people are regularly employed above the seventh floor or more than 90 ft. above the ground level of such building, the owner of the building shall install an automatic sprinkler system approved as to form and manner in the city of New York by the fire commissioner of such city, and elsewhere by the state fire marshal. Such installation shall be made within one year after this section takes effect.

The methods of enforcing its standards are of two kinds. First, where defects or unlawful conditions within the jurisdiction of local or state authorities are found they are referred to these authorities; second, enforcement of its own standards is undertaken directly by the sending of a notice to the shop proprietor, followed if necessary by personal efforts by an inspector to induce compliance. If this fails the case is referred to the manufacturers' association (the party to the protocol) if one of its members is involved, or to the unions if the case is outside of that association. The manufacturers' association is so effective with its members in this matter that the second annual report of the board, made in December, 1912, stated that 208 of the 216 members of the association had received the sanitary certificates referred to below. In the case of enforcement through the unions, for extreme cases the so-called "sanitary strike" has been resorted to to enforce the standards.

Another agency to induce compliance with the board's standards has been developed in the "sanitary certificate" granted to shops which meet all of the board's requirements. In 1912 the employers' association gave an important impetus to this agency by adopting a rule that all contractors doing work for its members must have certificates.

In addition to its work of enforcement the board has carried on active educational work by the publication of a *Bulletin*, annual reports and articles in trade journals, etc. These publications may be secured of the secretary at 31 Union Sq., W., New York City.

An interesting development in the extension of the system to the dress and waist industry is the inclusion of both industries under the one board. The two industries being closely related, it was considered that the machinery of the cloak and suit board was sufficient for both, and accord-

ingly the existing board was simply enlarged by adding four members, two each representing the manufacturers and the unions in the dress and waist industry. With this addition there was made an important administrative change in the appointment of a salaried director to take charge of the administrative work formerly handled by a committee of members.

In the dress and waist industry a general inspection of shops was made in March, 1913, and a special report made thereon. The sanitary standards of the cloak and suit industry, with a few additions, were adopted for the dress and waist shops. On Sept. 1, out of 673 of the latter, 506, or 75 per cent., had been certificated.

An important development of the board's work during the year has been the establishment of medical supervision of workers. In March and April, 1912, a special medical examination of 800 employees was made, which revealed the presence of various diseases among the workers in such degree as to lead the board to undertake a campaign for the elimination of contagious diseases, especially tuberculosis, from the industry. The first step adopted was the exclusion from the shops of tuberculous workers. To carry this out as well as to meet the need of medical examinations for other purposes the board's *Bulletin* for September, 1913, notes the establishment of a medical department comprising a medical examiner in regular attendance at the office and consulting physicians. During the months from April to August inclusive a total of 620 examinations had been made, and in September a definite system of organization and administration was being adopted.

The latest development of the board's work, definitely planned and in process of evolution in October, is a system of tuberculosis benefits and insurance. The necessity for something of the kind was at once revealed as soon as exclusion of tuberculous workers from the industry was undertaken. Indicative of the scientific as well as progressive spirit of the board's work is the fact that in the planning of this newest feature the director went to Germany during the summer for the purpose of studying the advanced system of tuberculosis insurance in that country.

COST OF LIVING

For the first eight months of the year, at least, the prices of food for the workingman ruled higher in 1913 than in 1912, and 1912 was the record year for high food prices at the end of a period of steadily rising prices since 1896. The best index of food prices with especial reference to wage earners is that of the Federal Bureau of Labor Statistics. The index numbers for 15 articles of food, representing approximately two-thirds of the average workingman's expenditure for food, are as follows for the first eight months of the last three years:

	1911	1912	1913
January	145.0	153.5	157.9
February	140.4	150.9	155.8
March	137.6	147.6	156.7
April	135.3	152.7	158.9
May	135.4	154.6	157.2
June	139.2	154.1	159.2
July	143.7	151.8	163.6
August	144.5	153.8	166.1
Average	140.1	152.2	159.4

In the following table is a comparison of the average monthly indexes for the year from 1896, when the figure was the lowest in the record beginning with 1890, to 1912.

1896	95.2	1905	116.4
1897	96.7	1906	120.3
1898	99.7	1907	125.9
1899	100.8	1908	130.1
1900	103.0	1909	137.2
1901	108.5	1910	144.1
1902	114.6	1911	143.0
1903	114.7	1912	154.2
1904	116.2		

Food is not the only element in the cost of living, but for the wage earner it is the principal item, constituting about 40 per cent. of all his expenditures. As is shown on another page (XIII, *Economic Conditions*), the increase in the cost of living has not been confined to food alone, but has been general over the entire list of necessaries.

LABOR LEGISLATION

IRENE OSGOOD ANDREWS

ACCIDENTS AND DISEASES

Reporting of Accidents.—Legislation bearing on accident reporting was enacted during the year in 13 states; of these seven, Illinois, Florida, Maine, Missouri, Montana, New Hampshire, and Pennsylvania, required accident reports from railroads and other public-service corporations. The reporting of accidents was required in 1913 for the first time in Tennessee in all places where persons are employed, and in Iowa in mercantile establishments, mills, workshops, business houses, and mines not subject to state mine inspection. In Massachusetts the reporting law was greatly strengthened, supplemental reports required, arrangements made for an interchange of reports between the different departments, and immediate reports required of all elevator accidents. Nebraska strengthened and extended her reporting law, Minnesota requires all deaths or serious injuries to be reported within 48 hours, but Pennsylvania, in contrast to most other industrial states, does not require reports to be made until 30 days after the accident, and no accident causing less than two days' disability need be reported.

Reporting of Occupational Diseases.—Four new states during the year, Maine, Minnesota, New Hampshire, and Ohio, passed the standard law requiring physicians to report all cases of industrial poisoning from lead, phosphorus, arsenic or mercury or their compounds, or from anthrax or compressed-air illness, or any other ailment or disease contracted as a result of such person's occupation or employment which comes within the physician's practice. Connecticut and New York added brass and wood-alcohol poisoning to their previous specific lists of reportable diseases, and in Missouri, Ohio, and Pennsylvania the reporting of diseases found in the monthly medical examination of workers in lead-using establishments was made a feature of the new laws on industrial hygiene. Massachusetts gave the state Board of Labor and Industries power to issue a list of reportable diseases and to require reports from physicians (Ch. 813). Fifteen states now require the reporting of occupational diseases.

Factories and Workshops.—Industrial boards or commissions were created in California, New York, Ohio, Oregon, Pennsylvania, and Washington, with power to make additional rules and regulations for the welfare of employees. In Massachusetts the powers of the reorganized Board of Labor and Industries were extended, and this board sitting jointly with the Industrial Accident Board may make rules and regulations for the welfare of employees. In Minnesota, the power of the Bureau of Labor in enforcing provisions for the health and safety of employees was greatly increased, and includes "any practicable method of mitigating or preventing a specific danger." An important work was authorized in Ohio where the state Board of Health is directed to investigate and report to the 1915 legislature concerning the effects of occupations upon the health of employees. An appropriation of $14,000 for two years is made (J. R. 12). Three other important measures were enacted in Ohio, Pennsylvania, and Missouri for the prevention of occupational diseases, with special reference to lead poisoning. The Ohio and Pennsylvania laws are practically identical, but the Missouri law, although similar in its requirements, is less specific and covers a larger number of workplaces. Employers are required to provide, without cost to the employees, reasonably effective devices, means and methods to prevent illness or disease incident to the work of process in which such employees are engaged. Every employee exposed to lead dusts or fumes must be examined medically at least once a month by a physician paid by the employer; if lead poisoning symptoms are found a record must be filed with the factory inspector within 48 hours and one also sent to the employer, who may not employ that man in any place where he will be exposed to lead dusts or fumes without a written permit. Adequate notices must be prominently posted,

stating in English and such other languages as circumstances may require, the dangers of the work and instructions for avoiding dangers. The general provisions of the Ohio and Pennsylvania laws went into effect Oct. 1, 1913; those provisions requiring expensive machinery and extensive changes in building construction go fully into effect one and two years later. The Missouri law (H. B. 536) took effect June 23, 1913.

New York enacted a large number of laws relating to the health and safety of factory workers. The definition of "factory" is extended to include "all buildings, sheds, structures, or other places used for or in connection therewith," except power-houses, barns, storage houses, sheds, and other structures (but not construction or repair shops) used in connection with railroads and subject to the Public Service Commission. Work for a factory is defined to mean work "done at any place, upon the work of a factory or upon any of the materials entering into the product of a factory, whether under contract or arrangement with any person in charge of or connected with such factory directly or indirectly through the instrumentality of one or more contractors or other third person"; "factory building" means "any building, shed or structure which, or any part of which, is occupied by or used for a factory." The definition of "tenement house" is extended to include those tenement buildings which are occupied "in whole or in part," and specifically includes apartment or flat houses which come under the definition of a tenement; the qualifying phrase of the old law, "and having a common right in the halls, stairways, yards, water closets, or privies or some of them," is omitted from the new definition (Ch. 529). Brass, iron and steel foundries are now subject to all requirements of the consolidated labor law relating to factories, and specific regulations are made in regard to heating, cleanliness, lighting and toilet facilities (Ch. 201).

The existing laws relating to ventilation, toilet facilities, heating and lighting in washrooms, dressing-rooms, cleanliness of walls, floors, ceilings, windows and other parts of factory workrooms, as well as yards and passageways, were all amended and requirements were made more specific. Regulations for healthful conditions in bakeries are also given in more detail. On all of these subjects the industrial board of the Department of Labor may make rules and regulations to carry out the requirements of the law.

The existing laws providing for safety of employees were also amended and greatly strengthened. These laws apply to the covering of vats or pans, the guarding of hydro-extractors and other dangerous machinery, including belting and revolving shafts. Passageways and other parts of a factory, especially where moving machinery is placed, must be carefully guarded to protect persons passing or working in those parts.

The fire prevention laws were greatly amended and extended. These relate to fireproof enclosures for waste material, and fire drills. The earlier law providing for protection against fire is rewritten and made specific, and is greatly extended in its application and requirements. It regulates the fire-prevention provisions for existing buildings, the construction of future buildings, limits the number of occupants on floors in proportion to the floor space, to the use of sprinkling systems, to the kind of materials used in construction, and to the width and construction of stairways. The law also regulates the construction of doors, windows, exits, stairways, landings, and defines what shall constitute fireproof construction and material (Ch. 461).

The law regulating tenement-house work is amended by omitting the specified list of prohibited articles of manufacture and permitting work only on articles for personal use and on cotton and linen fabrics which are subject to the laundering process. The manufacture of articles of food, dolls or dolls' clothing, children's or infants' wear is specifically forbidden, and the granting of licenses and permits is regulated in detail. The amended law exempts shops situated on the ground floor which are entirely separated from the rest of the building and which are not used for sleeping or cooking purposes; such shops hereafter will be subject to inspection under the factory acts. The regula-

tion of cellar bakeries is also specifically placed under the bakery law. To the old conditions under which a license may be revoked is added a new one which forbids the employment of children under fourteen in tenements. Any employer in any factory giving out work to be done in a tenement must issue with the materials a legible label bearing his name and address which must, on demand, be exhibited to the tenement inspectors. Before articles for tenement manufacture may be sent out, the employer must also secure from the Commissioner of Labor a permit which may be revoked if any part of the law is violated. A complete list of the names and addresses of factory owners sending out work, of all tenement houses holding licenses, and of all revoked or suspended licenses, must be published from time to time by the Commissioner of Labor (Ch. 260).

In several other states laws were enacted protecting the health and safety of employees. Among these Delaware requires canneries to be maintained in a sanitary condition, including supplies of soap, water, towels and separate living and dressing-rooms. Florida makes specific regulations for hotels and restaurants. Illinois requires sanitary washrooms and dressing-rooms with lockers, and hot and cold water to be maintained wherever employees become covered with grease, smoke, dust, grime, or perspiration. Iowa requires all places where molten metal or other material gives off injurious gases or fumes to be equipped with exhaust pipes. Louisiana requires the same for newspaper and printing concerns, and Massachusetts requires publishers and printers to use sanitary cloths in cleaning presses. Pennsylvania and Connecticut both enacted specific laws requiring the removal of dust from emery or other polishing or buffing wheels. Michigan, Minnesota, New Hampshire, and Tennessee, as well as New York, required additional fire-escapes for factories. Massachusetts may make investigations into the lighting conditions of factories. California requires a medical or surgical chest to be maintained, free of cost to employees, and Nebraska extended and strengthened her earlier law providing for the health and safety of employees in factories.

Mines.—Legislation in 16 states in 1913 on the subject of mines resulted in greater thoroughness both in protective requirements and in methods of enforcement. Two states, Colorado (Ch. 56) and Michigan (No. 177), completely rewrote their mine codes, with many amplifications. Two states, Kansas and Ohio, authorized the establishment of fully equipped mine rescue cars, several states required employers to equip emergency rooms, while Illinois extended the term of office of the mining investigation commission to the end of the 1915 legislative session and again appropriated $10,000 for its use. Pennsylvania authorized the Governor to appoint the dean of the school of mines of the State College, the chief of the department of mines, and a practical miner, as a commission of three, to coöperate with the United States Bureau of Mines in establishing a state mining experiment station to safeguard the lives of miners and bring about greater efficiency in the mining and mineral industries. Tennessee also authorized any individual or organization connected with a mine to establish rescue stations, subject to the inspection, direction, and approval of the chief mine inspector of the state, and receive state aid up to $50 a month by conforming with certain regulations and coöperating with the United States Bureau of Mines (Ch. 38). Many of the new laws regulated the quality of illuminants, the handling of powder, the use of machine drills, and the stabling of animals underground. Kansas and Oklahoma made specific detailed requirements in regard to bath houses, while others required telephone systems, automatic sprinklers, and improved ventilating apparatus. In the matter of enforcement, Iowa, Michigan, Missouri, and Wyoming reorganized and expanded existing staffs or raised the qualifications of inspectors; Colorado, Illinois, and Wyoming strengthened their systems of mine examinations in order to determine qualification of inspectors and mine employees. An interesting development, seen in Colorado and Missouri, is that requiring inspectors to post conspicuously at the mouth of

the mine statements of improvements necessary for the operatives' protection. In Nevada no person may be employed in underground or surface workings who does not clearly speak and readily understand English, or who cannot readily read or understand signs or notices of safety rules printed in English.

Railroads and Street Cars.—An important feature in the railroad legislation of the year is the requirement of full crews in nine states, Arkansas, California, Nebraska, Nevada, New Jersey, New York, Ohio, Oregon, and Wisconsin; several of these acts amend earlier laws, but the new ones of this year in New Jersey, New York and Oregon make a total of 19 states with such laws (see also XXII, *Railroads*). In California the full-crew law is amended to include trains propelled by electricity or other motive power and to increase the number of brakemen on freight trains by a scale graduated according to grade of track and number of cars (Ch. 168). In New York railroads more than 50 miles in length are forbidden to operate without a full crew defined as follows: on freight trains with more than 25 cars, one engineer, one fireman, one conductor and three brakemen (but if there are 25 cars, or less, only two brakemen); on light engines without a car, one engineer, one fireman and one conductor or brakeman; on any train except freight trains of five cars or more, one engineer, one fireman, one conductor and two brakemen; and on baggage trains or passenger trains with a baggage car, one baggageman in addition to above crew (Ch. 146). In Wisconsin railroads must not establish, enforce or permit unreasonable conditions affecting switching crews or require or permit such crews to consist of less than a reasonable number of employees, both standards to be determined by the Railroad Commission (Ch. 63).

Twelve states regulated the use of headlights on engines; Kansas and North Carolina required covered sheds for employees on repair tracks; Maine, New Hampshire, and New York regulated the construction of caboose cars, and Minnesota and North Dakota required tracks to be kept free from obstructions. In Iowa cabs on all locomotive engines must be equipped, between Nov. 1 and April 1 of each year, with frost glass at least eight inches wide and 18 in. long, placed on each side of the cab in front of the seat of the engineer and fireman; in Montana, after Nov. 1, 1913, street cars must be equipped from November to March with heated vestibules, and summer cars must be equipped with suitable wind-shields extending completely across the front of the car to protect employees from exposure to inclemencies of the weather; while in Vermont any corporation operating suburban cars by electricity must provide proper seats for the use of the motormen. In Wisconsin mail, express, baggage or passenger cars made principally of wood may not be used between the engine and two or more cars made of steel or similar material. In those states where railroad or public service commissions exist there is a marked tendency toward giving the commissions power to require all practical safety devices and to inspect for compliance with their rulings, and in a few states measures relating to the qualifications of trainmen were enacted.

Building Construction.—In only four states was legislation adopted to promote the safety of workers in building construction. Scaffolding and hoists were carefully regulated in California and Colorado, and in the latter state rules were adopted on the laying of floors. In both of these states the inspector may order any defective apparatus out of use until it is remedied. In most other respects these laws follow similar laws previously enacted in many other states. Ohio continued its committee, which is working on a building code, while in New York the building construction law was amended to omit the specific requirements concerning the completion of flooring, and now requires that such work must be completed "as the building progresses"; all contractors, instead of only those for carpenter work, are required to lay under-flooring, and iron or steel beams must be planked over for not less than six feet beyond the beams on the tier where structural iron or steel work is being done (Ch. 492).

Miscellaneous Industries.—A number of states enacted laws to protect

workmen in industries other than those treated in the foregoing sections. California and New Jersey guarded against accidents to dock workers. Massachusetts established a board of seven members to provide for safety on elevators: a consulting engineer, a building inspector, the building commissioner of Boston, a building inspector from some other city, a representative of the insurance companies, a representative of the elevator manufacturers, and an experienced elevator constructor; the board is empowered to make rules on any factor entering into elevator safety, which become law upon the approval of the Governor and the Council; provision is made for proper hearings and appeals (Ch. 806). New York and New Jersey amended their elevator construction laws by requiring many specific safeguards. New York also amended its unique law for the protection of men in caissons; this latter law (Ch. 528) is the only measure in the country based on scientific experience which regulates the hours of labor of men in an especially dangerous occupation. Four states, Indiana, New Jersey, New York, and Ohio, legislated on boiler inspection and the licensing of engineers, and two states established safeguards for electrical workers, by requiring, in New York, the installation of rubber mats before switchboards of 220 volts or over, and in Washington electrical apparatus to be well insulated and safeguarded, and by regulating the size, construction and care of manholes. Illinois required automobile hoods and shields for commercial chauffeurs, California regulated in detail the use of wiping rags, while a Federal law required full crews on vessels, the number of which is to be determined by local inspectors.

ADMINISTRATION OF LABOR LAWS

Industrial Commissions and State Departments of Labor.—The widespread conviction that complete reorganization of methods of enforcement is necessary in order to secure the efficient enforcement of labor laws has led to sweeping changes in many states. The year saw a rapid extension of the principle of enforcement through administrative orders, the main principle or requirement being determined by the legislature, and the application of the principle being carried out by a board or commission. The Massachusetts Board of Boiler Rules, created in 1907, was the leader in this kind of labor legislation in this country, although the method is common in the most important European countries. This was followed in 1911 by the creation of the Wisconsin Industrial Commission, with jurisdiction over trade disputes, workmen's compensation, unemployment, and also over the health, safety, and well-being of workers in all industrial employments. In 1913 the Wisconsin plan was adopted in Ohio, was followed in a modified form in Massachusetts, and was applied to the protection of "life and health" in California. The Industrial Commission of Ohio consists of three members, at $5,000 each, appointed by the Governor and subject to his removal; employers and employees are to be represented in the Commission and not more than two of the members may be of the same party. The jurisdiction of the Commission includes factory inspection, labor statistics, free employment offices, boiler, mine, and building inspection, trade disputes and the compensation of industrial injuries. It includes also the power to regulate hours of labor for all employees. Actions against the Commission must be brought in the Supreme Court of the state (S. B. 137). In Massachusetts rules and regulations for the prevention of industrial accidents and diseases are to be made by the joint action of the state Board of Labor and Industries and Industrial Accident Board, which shall make arrangements to prevent overlapping or duplication of work. The joint board may appoint committees of employers and employees to aid in forming rules, may require the reporting of occupational diseases and may enter any place of employment used for business purposes. Proper hearings, open to the public, are required to be held after specified notice. The Act covers practically every place where a person is employed, except in domestic service and farm labor; "safety" is defined

to mean "such freedom from danger to the life, safety, and health of employees as the nature of the employment will reasonably permit" (Ch. 813). The California Commission is required to make rules and regulations for the protection of the "life and safety of employees" (Ch. 176). Commissions of three or five were created in Oregon and California to regulate hours, wages, and conditions of work of women and children, and in Washington, Nebraska, Colorado, Minnesota, to regulate wages and conditions of work; the powers of these commissions will be analyzed in full under *Woman's Work, infra.*

In New York and Pennsylvania departments were reorganized and enlarged, both states provided for the establishment of industrial boards with power to make rules and regulations for the health, safety, and comfort of employees, and both created divisions of industrial hygiene. New state departments on the plan of the older method of administration were created in Arkansas, Montana, and Vermont, special inspectors for children's and women's work were authorized in Delaware and Florida, and existing departments were reorganized or enlarged in nearly a dozen additional states. The desire to avoid the delays of court procedure and to secure concentration of administration led this year to the establishment of boards or commissions to administer the workmen's compensation acts in Illinois, Nevada, Oregon, Texas, and West Virginia. Similar boards had formerly been created in California, Massachusetts, Michigan, Ohio, Washington, and Wisconsin. To the five states now requiring civil service examinations for state employees, Connecticut and Minnesota were added during the year.

Federal Department of Labor.—A Federal Department of Labor was created, embracing the immigration and naturalization service (now two distinct bureaus), the Children's Bureau, and the Bureau of Labor (now the Bureau of Labor Statistics), all of which were formerly under the Department of Commerce and Labor. The Department is headed by a Secretary of Labor, with a seat in the President's Cabinet. The duties of the new Department are "to foster, promote, and develop the welfare of the wage earners of the United States, to improve their working conditions, and to advance their opportunities for profitable employment." The Secretary also has power to act as mediator in labor disputes and to appoint commissioners of conciliation "whenever in his judgment the interests of industrial peace may require it." The Commissioner of Labor Statistics must report at least once each year statistics of the conditions of labor and the products and the distribution of the products of the same, and may call upon other departments for data collected by them. He is also to have the administration of the Federal Employees' Compensation Act of May 30, 1908. (See also I, *American History;* and V, *The National Administration.*)

CHILD LABOR

On the question of child-labor legislation, 31 states out of the 42 holding legislative sessions enacted legislation on this subject. Three states, Delaware, Florida, and Nevada, which had previously practically no legislation on this subject, enacted fairly comprehensive laws. In Delaware hours are limited to 54 a week for children under 16; night messenger work is prohibited under 18, street trades are regulated, and children under 14 are forbidden to work during school hours and in a list of 27 specified employments; the granting of certificates for employment is also regulated. In Florida, children under 12 may not work in stores, offices, or as messengers; children under 14 may not work in factories, laundries, or theaters, nor under 16 in a list of specified dangerous occupations; children under 18 may not work as night messengers; the granting of employment certificates is regulated. In Nevada children may not work in any occupation during school hours under 14, nor in a list of specified dangerous occupations under 16, nor in the night messenger service under 18; hours per day are limited to eight for boys under 16 and girls under 18. In California the eight-hour day is extended to include all workers under 18, and in Massachusetts to include workers under 16. Several states limited

hours to ten a day and 54 or 55 a week, while Vermont limited hours for workers under 16 to nine a day and 50 a week. Night work was prohibited in Connecticut after 6 P. M. for children under 16, and in North Carolina between 9 P. M. and 6 A. M. for children under 16. The compulsory school attendance laws were amended and strengthened in several states, while in five states, Indiana, Massachusetts, New York, Ohio, and Wisconsin, provision was made for the compulsory attendance at continuation schools of minors employed by virtue of employment certificates. Two states, New York and Rhode Island, required a physical examination of all children seeking work certificates, and provided that boys over 12 may be employed during vacation in gathering produce, but not for more than six hours a day. New York forbade the employment of children under 14 in tenement houses. Five states, Delaware, Massachusetts, Nevada, New York, and Wisconsin, gave the boards of health or labor departments power to extend the list of prohibited employments for minors of certain ages in these states, and Massachusetts authorized a free employment office for children, in Boston. In Wisconsin, the laws prohibiting certain employments to minors were repealed; instead it was forbidden to "employ, require, permit, or suffer any minor . . . to work in any place of employment, or at any employment dangerous or prejudicial to the life, health, safety, and welfare of such minor, or . . . where the employment of such minor may be dangerous or prejudicial to the life, health, safety, or welfare of other employees or frequenters." The Industrial Commission must determine reasonable classification of employments and enforce the required prohibitions. Pending action by the Commission a long schedule of employments is prohibited (Ch. 466). (See also *Woman's Work, infra.*)

EMPLOYERS' LIABILITY AND WORKMEN'S COMPENSATION

General Liability Laws. — General liability laws were enacted or amended during the year in 13 states. In Minnesota, North Carolina, North Dakota, Wisconsin, and Wyoming certain defenses of the employer were removed in railroad accidents to which violation of a safety statute contributed, and in Arkansas the same action was taken with regard to all corporations except railroads, which were covered by the law of 1911. The movement to substitute the principle of comparative negligence for the complete defense of contributory negligence met with success in Florida in a specified list of employments, in Nebraska in all employments, and in Wisconsin and Wyoming on railroads. Several other states also modified their general liability laws in ways which affect labor, but these cannot strictly be called labor laws.

Workmen's Compensation and Insurance.—Commissions to study methods of compensation for industrial injuries were created during the year in Indiana, Louisiana, and Vermont, and the Pennsylvania commission of 1911 was continued. Workmen's compensation laws were enacted in 1913 in the states of Connecticut (Ch. 138), Iowa (Ch. 147), Minnesota (Ch. 467), Nebraska (Ch. 198), Oregon (Ch. 112), Texas (Ch. 179) and West Virginia (Ch. 10), and New York, while the laws of California, Illinois, Nevada, Ohio, and Wisconsin were recast. The Oregon law was adopted on referendum at the election of November 4. Adding these laws to those passed in 1912 (Arizona, Maryland, Michigan, and Rhode Island) and in 1911 (California, Illinois, Kansas, Massachusetts, New Hampshire, Nevada, New Jersey, Ohio, Washington, and Wisconsin), we find that there are 22 states now having compensation legislation of some kind. The New York act, approved Dec. 17, is omitted from the following discussion but is reviewed on another page (see I, *American History*).

Compulsory compensation laws are now found in California, Ohio, and Washington, while in Connecticut, Illinois, Iowa, Kansas, Minnesota, Nebraska, Nevada, New Jersey, Oregon, and Wisconsin, election is presumed. Nevada, Oregon, Washington, and West Virginia limit insurance to a state fund, while California, Michigan, and Ohio permit, in addition to the

state fund, insurance in regulated mutuals or in private companies, or establishment insurance, while Minnesota and Nebraska leave this matter entirely to the discretion of the employer. Massachusetts, Texas, and Wisconsin offer insurance in state encouraged mutual companies or in private insurance companies. Mutual companies are also authorized and regulated in Connecticut, Iowa, Kansas, Minnesota, and Nebraska. The Ohio provision of 1911, requiring employees to contribute to the fund, was omitted in 1913, but this provision is included in the new Oregon and West Virginia acts. In Oregon employees contribute 0.5 per cent. of their wages and in West Virginia 10 per cent. of the rate. Employees of the state or some of its political subdivisions are now included in California, Illinois, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Jersey, Ohio, Washington, and Wisconsin. The value of commissions to administer the compensation acts was recognized in Nevada and Illinois, where, after a year's experience, the laws were amended to include this provision. In addition to these two states, commissions or boards administer these laws in California, Massachusetts, Michigan, Ohio, Oregon, Texas, Washington, West Virginia, and Wisconsin, a total of 11 states. Constitutional amendments permitting the enactment of compulsory laws were adopted in Ohio and California in 1911, in Vermont and New York (see I, *American History*) in 1913, and an amendment is to be submitted to the people at the next election in Wyoming.

In the new and rewritten acts of 1913 all employments are included in California, Connecticut, Illinois, Iowa, Minnesota, and West Virginia. The employments covered are limited to those with five or more employers in Nebraska, two or more in Nevada, five or more in Ohio, and five or more in Texas. In most of these states, however, farm labor, domestic service, and casual employments are excepted, while in Oregon the act covers an enumerated list of hazardous occupations.

The compensation in case of death is fixed in California at three years' earnings, an annual minimum of $333.33 and a maximum of $1,666.66; in Connecticut at 50 per cent. of weekly wage for 312 weeks, with a weekly minimum of $5 and a maximum of $10; in Iowa at 50 per cent. of weekly wage for 300 weeks, with a minimum of $5 and a maximum of $10; in Minnesota at a maximum of 60 per cent. for 300 weeks, with a minimum of $6 and a maximum of $10; in Nebraska at 50 per cent. of weekly wage for 350 weeks, with a minimum of $5 and a maximum of $10; in Nevada at 50 per cent. of monthly wage for 100 months, with a minimum of $20 and a maximum of $60 and a total maximum of $5,000; in Ohio at 66⅔ per cent. of weekly wage for six years, with a minimum total of $1,500 and a maximum total of $3,750. In Oregon $30 per month is allowed to a widow or an invalid widower, plus $6 for each child under 16, with a maximum of $60 per month; payments to widow or widower are made for life or until remarriage. In Texas 60 per cent. of the weekly wages are allowed for 360 weeks, with a minimum of $5 and a maximum of $15; in West Virginia $20 per month to a widow or invalid widower, plus $5 for each child under the legal age of employment, payments to widow or invalid widower being made until death or remarriage, but limited to $35 per month. Minor variations exist in all of these laws and compensation is also provided in relative proportions for total disability and for partial disability.

In addition to those states which practically rewrote their former compensation laws, seven states made minor amendments to their acts which did not affect any of the main provisions, except in Wisconsin, where the defense of contributory negligence is abrogated for the employer having four or more employees who does not elect compensation; and the maximum benefit for permanent total disability and for death during permanent total disability is increased to six times the annual earnings. Kansas reduced the number of employees necessary to bring an establishment under the act from 15 to five, and mines are included without regard to the number of employees. Both Wisconsin and

Kansas made election by the employer presumptive. In Massachusetts, Michigan, Rhode Island, and Washington, acts were amended in several minor points; while New Jersey changed the scale of compensation on a few points and raised the minimum compensation in case of death from 25 per cent. to 35 per cent. of the wages and increased the maximum age at which normal orphans may receive payments from 16 to 18. Ohio in addition to rewriting her act specifically forbade discrimination against nonresident dependents of workmen killed in this country and required that they be paid the same compensation as dependents here.

HOURS OF LABOR

Public Employment.—Ohio and Texas were added in 1913 to the 24 states and the Federal Government which have enacted laws limiting hours of labor on public work to eight a day. The Ohio Law enacted in accordance with the constitutional amendment of 1912 and the amended New Jersey, Oregon, and Wyoming laws specifically include contract work done for the state. In Idaho agricultural and domestic laborers employed by state institutions, in New York stationary firemen in state hospitals, and in Kansas employees of municipal light or water plants owned or operated by second- and third-class cities and towns, are exempted from the hour limitation laws. Pennsylvania defeated a constitutional amendment submitted on Nov. 4, to give the legislature power to regulate hours, wages, and conditions of work of public employees. Employees in the Federal service engaged in dredging or rock excavation in any river or harbor thereof are specifically brought under the Federal eight-hour law.

Private Employment.—The regulation of the hours of work for men outside of public employment, work in mines, and in connection with the movement of trains, has progressed very slowly in this country. But an important decision was given in 1913 in Mississippi, where the state Supreme Court upheld a 1912 law limiting hours of all employees in factories to 10 a day; the case is now before the Federal Court. Oregon during the year enacted a similar measure, which declares work for more than 10 hours in any one day in a mill, factory or manufacturing establishment to be physically injurious to the worker, tending to prevent him from acquiring that degree of intelligence necessary to make him a useful and desirable citizen of the state. More than 10 hours' work, therefore, in any of the above-mentioned establishments is forbidden, but three hours a day overtime at one and one-half the regular wage is permitted. Watchmen and employees making necessary repairs are exempt, as well as cases of imminent danger to life or property (Ch. 102). Missouri restricted hours to eight a day in silica mining and plate-glass manufacturing (H. B. 12), and Louisiana passed an eight-hour day measure for stationary firemen. Massachusetts (Ch. 619) and New York (Ch. 466) enacted effective one-day-rest-in-seven laws, which are practically uniform. Employees in factories and mercantile establishments in these two states must be given at least 24 consecutive hours of rest in every seven consecutive days.

Hours for employees on street and elevated cars in Massachusetts are limited to nine a day, to be performed within an 11-hour day (instead of 12, as before), but an employee may work overtime for extra pay (Ch. 833). In New York, California, and Nevada, hours of labor for employees on steam, elevated, or electrical roads and subways are regulated. In Ohio employees on interurban or street railways over four miles in length, and those on railroads over 30 miles long, must be allowed eight consecutive hours of rest in each 24-hour period (H. B. 272). Nevada and New Hampshire regulated employment on legal holidays, and Colorado, in order to avoid the confusion created by the adoption of two eight-hour laws for miners at the election in November, 1912, repealed both and reënacted her 1911 eight-hour law, including a "safety clutch," declaring that the law is "necessary for the immediate preservation of the public health and safety," thereby placing it in operation at once without submission to referendum vote.

PENSIONS AND RETIREMENT SYSTEMS

Although pension and retirement systems for policemen, firemen, and other salaried public employees were created in several states, pension systems for employees in private industries received little consideration. The Governor of California is requested to appoint a commission of five, to investigate systems of old-age insurance, pensions, or annuities, and mothers' pensions or compensation; a report must be made to the 1915 legislature, and $3,000 is appropriated for the use of the commission (Ch. 681). The Industrial Commission of Wisconsin must investigate the number, condition, and welfare of the aged and infirm with a view to establishing old-age pensions (Ch. 185).

In Massachusetts a Commission on Pensions is created to investigate existing pension systems of the state, the desirability of a service pension plan to which employees are to contribute, and also to report upon the advisability of a general pension system (Resolves, Ch. 106). The retirement system for laborers employed by the city of Boston is amended to give the laborer, after he has become physically incapacitated at the age of 60 and has given 25 years of service, a sum equal to one-half of his wages based upon full employment, instead of one-half of what he actually received; the amount to be paid is limited to $360 a year (Ch. 367). After receiving the first payment of their pensions or annuities, pensioners or annuitants of cities or counties may not be paid for services, except as jurors (Ch. 657); laborers employed in fire and water districts are brought under the pension acts (Ch. 671); and provision is made for the pensioning of scrubwomen (Ch. 711). In Pennsylvania cities of the first and second classes may create funds for pensioning employees who have given 20 years of service.

TRADE UNIONS AND TRADE DISPUTES

Twelve states and the Federal Government took legislative action on the subject of trade unions and trade disputes. Iowa, Nebraska, and Vermont established state boards for mediation, conciliation, and arbitration, New Hampshire replaced her temporary boards by a permanent one, and Pennsylvania placed the settlement of trade disputes under her new state Board of Labor and Industry. The use of the injunction was regulated in several states, but in Kansas (Ch. 233) and Montana (Ch. 28) the regulation applies specifically to labor troubles. Peaceful picketing is regulated in Massachusetts, where no person may be held for persuading or attempting to persuade another, by printing or otherwise, to do anything which is not unlawful, unless accompanied by an injury or threat of injury to the person, property, or occupation of the one being persuaded, or unless disorder or any unlawful conduct occurs, or unless the persuasion is part of an unlawful conspiracy (Ch. 690). In New Hampshire "it shall not be unlawful for any person to reason, talk, or argue with, and by arguments persuade or induce such other person to do any act or thing or pursue any line of conduct which is not the commission of an offense under the laws of this state" (Ch. 221). California enacted a law against blacklisting, and together with Maine and New Hampshire required employers seeking labor during a dispute to mention the existence of the dispute. Michigan, Missouri, and New Hampshire protected workmen in their rights of membership in labor organizations.

Perhaps the most important law of the year on this subject was that providing for the settlement of labor disputes on interstate railways by a Federal commission. The Erdman Act of June 1, 1898, relating to the settlement of labor controversies on railroads was repealed; instead there is established a United States Board of Mediation and Conciliation, to consist of a Commissioner of Mediation and Conciliation at $7,500 a year, an Assistant Commissioner at $5,000 a year, and not more than two other government officials, all to be appointed by the President with the consent of the Senate. The Commissioner holds office for seven years, but is removable by the President for mis-

conduct. Whenever there arises between any interstate railroad and its employees a controversy over wages, hours, or conditions of employment, which interrupts or threatens the business seriously, either party may appeal to the board, which must endeavor to bring about an amicable agreement, or, failing in that, to induce the parties to submit the controversy to arbitration. The board may also proffer its services without being appealed to. Another much discussed Federal law exempts trade unions from prosecution with funds appropriated for the enforcement of the Sherman Anti-Trust Law. (See also *Labor, supra;* and I, *American History.*)

UNEMPLOYMENT

In Illinois a commission was created to study causes and effects of unemployment (S. J. R. 28), and among the many very wide duties conferred upon the new California Commission on Immigration and Housing is the duty to "obviate unemployment" (Ch. 318). In South Dakota provision was made for a free public employment bureau (Ch. 117), in Illinois additional bureaus were authorized, and in Wisconsin any county, city, state, or village may enter into an agreement with the Industrial Commission and may expend the necessary money for the joint establishment of a local free employment office (Ch. 462).

In five states the regulations governing private bureaus were strengthened, excessive fees, fraudulent placements, unsuitable location of offices, and sending applicants to immoral resorts being the main points of attack. In California (Ch. 282) and Wisconsin (Ch. 663) entire new codes dealing with the private bureaus were adopted, placing the bureau under the supervision of the Commissioner of Labor in the former, and under the Industrial Commission in the latter state. In Connecticut and Michigan license fees were increased, and in Michigan (Ch. 301) and in Indiana (Ch. 353) the registration fees were carefully regulated with the hope of preventing frauds and exorbitant charges.

WAGES

Public Employment.—Legislation on wages in 1913 was widespread. Besides the minimum wage laws which are analyzed under *Woman's Work (infra)*, acts were adopted in six states affecting the wages of public employees. Massachusetts increased the wages of laborers employed directly by the Metropolitan Park Commission and the Metropolitan Water and Sewerage Board from $2.25 a day to $2.50 (Ch. 685). New Hampshire established a bi-weekly pay day for state employees not on salary, and Nebraska, Oregon, and Texas safeguarded wages on public contracts by requiring bonds protected by sufficient sureties and by strengthening any action brought for non-payment of wage.

Private Employment.—In respect to private employment, laws requiring semi-monthly pay days in a number of industries were passed or amended in Illinois, Tennessee, Indiana, Louisiana, Michigan, Ohio, Oklahoma, and Pennsylvania, while Maine extended to railroads its existing law requiring wages to be paid weekly. Louisiana and Missouri protected the wages due discharged workmen, while coal-mine wages were the subject of special enactments in Ohio, Pennsylvania, and Wyoming. In Ohio a commission of five was created to devise an equitable method of weighing coal at the mines. In Pennsylvania a record of cars mined must be kept at every anthracite coal mine where coal is mined and paid for by the car; this record shall be the final basis of computing the miners' earnings, without deduction for slate or other refuse loaded on the cars in the natural process of mining (No. 468). In Wyoming the mine inspector must test the scales at each regular visit (Ch. 16). Wage lien laws were enacted or amended in 15 states, and in Louisiana employers may not lend or advance money to a laborer in constructural, paving, or other manual work at a greater rate of interest than eight per cent. a year (No. 240).

WOMAN'S WORK

The Minimum Wage.—The increasing realization of the extent of under-

paid woman and child labor in this country, together with the example set by England, Germany, New Zealand, and Australia, has led to legislation on the subject of the minimum wage in 11 American states. The Massachusetts act of 1912 became operative on July 1, 1913, and similar acts were passed in 1913 in Washington, Oregon, California, Colorado, Nebraska, Minnesota, and Wisconsin; provision to study the subject was made in Michigan and New York; and an actual minimum-wage rate was established by law in Utah. The Massachusetts and Nebraska acts are not compulsory, since they may only publish the names of employers who refuse to pay the minimum wage as fixed by the commission. These acts apply to any occupation, but do not include men workers, although the Minnesota law covers minors up to 21 years of age. Either the workers or their representatives may be appointed on wage boards, but only in Minnesota is provision made for the election of representatives by the employees themselves. All of the acts went into effect during the year and Oregon in September determined upon minimum-wage rates in manufacturing and mercantile establishments in the city of Portland, to take effect in November.

The minimum-wage law of Oregon, which gives the Industrial Welfare Commission of that state power to regulate wages, hours, and conditions of work for women and children, made it unlawful to employ women or minors in any occupation for unreasonably long hours, or under surroundings or conditions detrimental to their health or morals, or to employ women at wages inadequate to supply the necessary cost of living to maintain them in health, or minors at an unreasonably low wage. The term "minor" means any person under the age of 18 years. To enforce this declaration an Industrial Welfare Commission is created, consisting of three unsalaried members, appointed by the Governor for three years. One member must represent the employing class, one the employed class, and the third must be an impartial person, representing the public. The commission shall elect one of its members as chairman and shall choose a secretary and fix his salary. It may establish for any occupation: hours of labor for women and minors, not exceeding the present 10-hour statutory limit; conditions of labor for women and minors; minimum wages for women workers; and minimum wages for minors.

Every employer is required to keep a register of all women and minors in his employ. The Commission has power to inspect books, pay-rolls, and records, and to investigate conditions which relate to the work of women or minors, and it may require full statements from employers regarding hours and wages, hold public hearings, subpoena witnesses, and administer oaths. If the Commission finds any substantial number of women working for unduly long hours or low wages in any occupation, it may call a conference to inquire and report upon conditions in that industry. The conference is to be composed of one or more of the commissioners, of not more than three representatives of the employers, three of the employees, and three disinterested persons, all appointed by the Commission, and its procedure is regulated by the Commission. The conference must report to the Commission its findings and recommendations, which may include minimum piece as well as time rates, minimum wages for learners and apprentices, and the maximum length of time that the latter rate may be paid. The Commission may disapprove any of the recommendations, and send them back to the same or a new conference. As soon as the Commission has approved the recommendation of the conference it must hold a public hearing and announce the same in at least two newspapers at least once a week for four consecutive weeks. After the hearing it may issue an order which will put into effect the proposed recommendations and will become operative after 60 days. Orders must be mailed to employers affected, and by them posted conspicuously in each room where women work. The orders may be different for different branches of an occupation or for different localities, and, where a time-rate wage has been established, a special license author-

izing a specified lower wage may be given to a woman physically defective. On questions of fact no appeal can be made, but on questions of law an appeal may be made to the state Circuit Court for Multnomah County and to the state Supreme Court. For minors, the Commission itself may determine, after investigation, standards of hours, wages, and conditions of work and may issue orders in the same manner as for women workers. The Commission must investigate whether employers are observing its orders, and must prosecute violations; the sum of $3,500 annually is appropriated for its use. Any woman worker who is paid less than the established minimum wage may recover in a civil action the balance of her legal wages, together with attorney's fees, notwithstanding any agreement to work at less than the established minimum. An employer who discharges or discriminates against an employee who has testified or who he believes is about to testify in any proceedings is guilty of a misdemeanor and subject to a fine of $25 to $100. The penalty for any person who violates an order of the Commission is a fine of $25 to $100, or imprisonment for 10 days to three months, or both (Ch. 62).

Procedure in the various states is similar to that in Oregon in all important details, but in California the Industrial Commission has power only to enforce that part of its findings which relates to wages. The commission may not act as a board of arbitration in any strike or lockout (Ch. 324). In Colorado the commission does not have authority over hours and conditions of work, and no provision is made for the creation of subordinate wage-boards, the commission itself establishing the wage standards (Ch. 110). In Massachusetts the act of 1912 establishes no authority over hours or conditions of work. The amendments of 1913 make it discretionary with the commission (instead of compulsory, as previously) to publish the names of those employers who do not accept the minimum wage as fixed by the wage-board; but an employer who has appealed to the courts on the ground that the recommended wage would "render it impossible for him to conduct his business at a reasonable profit" may secure an order prohibiting the commission from publishing his name (Ch. 350, 673). In Minnesota the commission has no authority over hours or conditions of work, but may regulate wages of all females and minors under 21 years of age (Ch. 547). In Nebraska the law follows closely the Massachusetts act of 1912, and grants no authority to enforce rulings except by publishing the names of employers who refuse to comply with its findings; the commission has no authority over hours or conditions of work (Ch. 211). In Utah the act differs from all others in that it establishes in the law itself a classified wage rate for all female employees. All regular employers of females must pay to those under 18 years of age not less than 75 cents a day; to adult learners and apprentices for not more than one year, not less than 90 cents a day; and to experienced adults not less than $1.75 a day. Enforcement lies with the Commissioner of Labor, and a violation is a misdemeanor (Ch. 63). In Washington the commission has authority over wages and conditions of work, but no power is specifically given to regulate hours (Ch. 174). In Wisconsin the minimum-wage law is administered by the Industrial Commission. By separate acts this Commission is also authorized to regulate conditions and hours of labor for women and children (Ch. 712). Commissions to study the subject of the need for a minimum wage were created in Michigan, the New York Factory Investigating Commission was continued and instructed to investigate the need for a minimum wage, while commissions on the work of women and children in Connecticut, Indiana, and Ohio may lead to minimum-wage legislation.

Hours and Conditions of Work.—A significant new development has occurred in the method of regulating hours of work for women and children. In 1913, in Oregon, California, Wisconsin, and Ohio, the industrial commissions have been given the power to determine, after careful investigation, the number of hours women and children may safely work in one day or one week. Different hours

may be determined upon for different occupations, depending upon the degree of danger involved in the work. The Oregon commission, after investigations and hearings, fixed for manufacturing and mercantile establishments in the city of Portland, a work-period below the statutory limit of 10 hours a day, to take effect in November, 1913.

In 20 states general laws limiting hours of work have either been amended or enacted for the first time. Two western states, Arizona and Colorado, have this year joined Washington and California in establishing an eight-hour day for women. Montana and Idaho have for the first time established a nine-hour day, and Delaware and Texas a 10-hour day. Delaware and Idaho specifically exempt canning establishments. Connecticut reduced the length of the working week for women to 55 hours, Minnesota, Nebraska, Pennsylvania, and Rhode Island to 54, and Minnesota, Nebraska, and Rhode Island, together with Missouri, Massachusetts, and Ohio, extended their 54-hour week to additional industries. South Dakota rewrote her 10-hour law, unenforceable since it can prosecute only those who "compel" a violation, Tennessee reduced hours to 58 after Jan. 1, 1914, and to 57 after Jan. 1, 1915, while Vermont limited hours to 58 a week, but permits 11 hours a day. In Wisconsin the law prohibiting certain employments to women is repealed. Instead it is forbidden to "employ require, permit, or suffer any . . . female to work in any place of employment, or at any employment dangerous or prejudicial to the life, health, safety, or welfare of such . . . female." The Industrial Commission is to determine reasonable classifications of employments and enforce the prohibition where necessary. Pending the commission's determination, work in mines and quarries is forbidden (Ch. 466), and day work (between 6 A. M. and 8 P. M., except employment after 8 P. M. not more than one night in the week) is limited to 10 hours a day and 55 a week, and night work (between 8 P. M. and 6 A. M.) to eight hours a night and 48 a week; and one hour for meals is required (Ch. 381). Delaware and New Hampshire have followed the example set by Wisconsin in 1911 and limited the night work of women to eight hours; but New York reënacted her night-work prohibition law, declared unconstitutional in 1907, and Nebraska and Pennsylvania entirely prohibited work in certain occupations at night between 10 P. M. and 6 A. M. California, following the example of Ohio, proposed a constitutional amendment which will specifically permit the enactment of laws regulating wages and conditions affecting the comfort, health and safety of employees.

MISCELLANEOUS LEGISLATION

In seven states the legislatures dealt with immigration; commissions to study the problem and to recommend legislation for the benefit of immigrants were authorized in Massachusetts (Resolves, Ch. 77) and New Jersey (Ch. 92). North Dakota (Ch. 44 and 118) created a board with power to visit other states and countries for the purpose of inducing immigration, and California established a permanent commission whose powers embrace the whole field of education, legal and industrial protection of incoming aliens, working in coöperation with existing agencies (Ch. 318).

Laws were enacted in several states which are aimed to protect workmen, but which do not properly fall under any of the other heads. California and New York regulated sanitary conditions in labor camps and in company living quarters, and Arkansas authorized the engagement of company physicians, to be selected and paid by the employees. Nevada prohibited railroad and transportation companies from requiring their men to purchase uniforms of any particular firm, and Massachusetts made provision for the employment of lamplighters in the city of Boston who may be thrown out of work because of a change in the method of street lighting. Minnesota forbids employers or agents to induce an employee to change from one place to another through written or printed false representations concerning wages, character of work, sanitary conditions, or the existence of a strike or lockout.

XVIII. PREVENTION, CORRECTION AND CHARITY

ALEXANDER JOHNSON

General Survey of Progress. — The most noteworthy developments of the year 1913 in the fields of prevention, correction, and charity have been the following.

The degree to which study of defectiveness has been focused on the defective-delinquents, especially those in juvenile reformatories and similar institutions.

The continued public attention to prison affairs and the development of the honor system of control with the concurrent increased employment of the prisoners in outdoor labor of all kinds, as well as the amelioration of the condition of the convicts within the walls.

The gradual withdrawal from its prominent place in the public mind of the old charity ideal and its replacement by the dominant ideal of social justice.

Another general tendency is toward the increase of public, tax-supported agencies of philanthropy and a relative, although not an actual, decrease of private charitable work. Alongside this tendency we see notable gifts in very large amounts for social purposes, but these are devoted to that social service which does not come under the usual designation of charity, although the purposes of the gifts are benevolent.

National and Other Conferences.— The conferences reported quite fully last year have held their usual meetings, some references to them appearing in the subsequent text. The National Conference of Charities and Correction held its fortieth meeting at Seattle. The subjects discussed were more of a social and less of a so-called charitable nature than formerly. The trend in the public mind, away from old-fashioned almsgiving and toward helpful social and preventive work, is as strongly marked in the National Conference as anywhere else. Instead of discussing methods of relief or almsgiving or of the administration of benevolent institutions, the president's address was wholly occupied with social justice, especially as it concerns industrial relations. The most animated discussions were those devoted to immigration. When child helping came up for debate the speakers were chiefly concerned with vocational and industrial training. The work of the Church emphasized was that which regards social progress, better living and decent industrial conditions, rather than charity. The trend of thought was unmistakably economic, the challenge to the industrial order for sweeping readjustments. However keen the interest in other topics, this was one which never failed to elicit enthusiastic response. The new radical labor groups, the Industrial Workers of the World, socialism, and the single-tax were frequently brought into discussion as movements to be reckoned with practically and studiously by social workers. The programme was closed at the last session with an all-round presentation of the subject of the minimum wage.

This emphasis on economic problems was further brought out by the report of the new Committee on the Relation of Commercial Organizations to Social Welfare, created at the 1912 Cleveland meeting. While the committee presented a most stimulating statement of the actual civic and social work of the "new commercialism" and showed the constantly broadening horizon of organized business in public matters, yet the report on the whole was a distinct challenge to

business to do away with those industrial conditions which are breeding extremist philosophy and "direct action."

For many years past the state conferences of charities and correction have reënforced the National Conference and for several years New York City has held an annual city conference. In 1913 county conferences of charities and correction to include health subjects were begun in Minnesota and will doubtless be copied in many states.

PREVENTION

Prevention of Defectiveness. — Last year's note under this heading referred to the remarkable development of research work in regard to the defectives. This has been continued during 1913, and attention has been increasingly directed toward the defective-delinquent.

Laws for assexualization or sterilization, either new or strengthened, are reported from California, Kansas, Michigan, North Dakota and Oregon (see also IX, *Criminal Law*). The New Jersey law has been declared unconstitutional by the Supreme Court. The test was made in the case of a woman inmate of the state Village for Epileptics. The decision concluded that the law is inept for the accomplishment of its intended purpose, because it does not require the sterilization of the vastly greater class who are not protected from procreation by their confinement in state institutions.

In Pennsylvania a so-called eugenic marriage law has been enacted. Laws prohibiting marriage of insane and other defectives have been enacted in Florida and North Dakota; and in Massachusetts the state Board of Health is to investigate and recommend further restrictions on marriage.

At the New Jersey State Conference of Charities a committee on provision for the mentally defective made a report, including a definite programme, which may possibly be taken as a model in some other states. The recommendations are based on some extensive research, conducted by the institutions of the state and by workers from the office of the Commissioner of Charities and Correction. The programme recommended that all mental defectives under school age should be cared for in their homes, subject to visitation by social worker, health authority and visiting nurse; that children of school age, not sexually or otherwise dangerous, should be sent to special classes in connection with the public schools; and state schools should be provided for defective children from rural districts where public school classes cannot be organized. Admission to the New Jersey State Home for Feeble-Minded Girls and Women was recommended for dangerously defective girls above school age, while adult males who are capable of productive activity should be placed in custodial colonies. For a number of this latter class a farm colony has already been begun on 500 acres of uncleared land which has been given by a public-spirited citizen, and a movement for a system of county colonies with state supervision and partial state support has been started.

The fact that abuses of narcotic drugs and alcohol are frequent and important causes of mental defect, as well as of poverty and other social trouble, is being increasingly realized. New laws on the subject have been enacted in a number of states. The sale of cocaine has been prohibited, except for strictly legitimate medical purposes, in Colorado and North Carolina. The sale or giving away of any narcotics has been regulated in Idaho and Maine. Laws limiting the sale of liquor have been passed in the District of Columbia and Hawaii, and the sale, purchase, or possession of cigarettes by minors is prohibited in Idaho. (See also XVI, *The Drug Evil;* and *The Liquor Problem.*)

The Defective-Delinquent.—Emphasized in governors' messages, reports from prisons and reformatories, from charitable societies, from child-helping agencies and many other organizations, the case for the delinquent who is really a defective and who, therefore, is not responsive to punishment or reformation, looms ever larger in the court of the public conscience.

Since the introduction into the country of the Binet-Simon measuring scale of intelligence, we have a definite and scientific method for determining mental strength (see XVI, *The Laboratory for Social Research*). This scale has been used during the year in a number of schools and other institutions with remarkable results. Here are the figures taken from the reports of tests made in seven reformatories, showing the proportion of mental defectives: New York Reformatory, Elmira, 37 per cent.; New Jersey Reformatory, Rahway, 33 per cent.; New York Reformatory for Women, Bedford, 37 per cent; Massachusetts Industrial School for Girls, Lancaster, 50 per cent; Maryland Industrial School for Girls, Baltimore, 60 per cent.; State Home for Girls, Trenton, N. J., 33 per cent., and Illinois State School for Boys, St. Charles, 20 per cent.

It is probable that an estimate of 25 per cent. of defectives among delinquents is not too large. On that basis that are 20,000 defective-delinquents in adult prisons and 6,000 in juvenile reformatories, or a total of 26,000 in actual custody. Probably as many more are at large as there are in institutions.

Of all human defects that are transmissible from parent to child, feeblemindedness is the most certain to be inherited. While everyone recognizes at sight the idiot and the low-grade imbecile, some of the higher grades of morons are not perceived to be defective until their acts prove it. While many of the present defectives are the children of apparently normal parents, few or none of them who become parents will produce normal children. While sterilization may be necessary and therefore advisable in some cases, yet segregation is the most practical and effective means to restrict the propagation of the feebleminded. It has been successfully tested with the insane. Thirty years ago the segregation of the insane seemed almost a hopeless undertaking, but in 23 years, from 1880 to 1903, the number of insane in hospitals was increased nearly fourfold, and the ratio was increased from 82 to 186 for each 100,000 of the population. What has been done for the insane can be done for the feeble-minded. We may estimate the number of feeble-minded under public care as follows: in institutions for feebleminded, 20,000; in almshouses, 16,000; in hospitals for insane, 5,000; in prisons and reformatories, 26,000. Thus 67,000 are already under public care, or, as near as can be judged, one-third of the feeble-minded persons in the United States. The problem of segregating the feeble-minded is not as large, in proportion to our resources, as was that of segregating the insane 30 years ago.

The superintendent of a large industrial school for girls, a woman of extraordinary mental power and long experience, recently proposed that, as over 60 per cent. of the girls in her care were mental defectives, the institution should be changed, and instead of being a school, from which the pupils must graduate when of age to go out to almost certain lives of vice, it should be made into a home for defective women and girls, in which they may find safety, shelter, and profitable employment so long as they shall need them. Some such method must be adopted. It will be infinitely better and very much cheaper than to go on at our present rate of increase in building prisons, reformatories and hospitals for the insane, for with the segregation of the defectives the rapid increase in the other undesirable classes will cease. This is the most important piece of preventive work now waiting to be done by the American people.

Prevention of Vice.—The age of consent has been raised during the year in a few states: in Arizona it is 18; in California it has been raised from 15 to 18; in Hawaii, from 16 to 18. In Missouri the age of consent has been raised from 14 to 15, regardless of the character of the girl, and to 18 in cases of girls previously of chaste character. In Maine to take indecent liberties by an adult with a child under 16, with or without consent, is made a felony punishable by imprisonment of from one to ten years.

Surveys of vice conditions have been made by state or city commissions or by private organizations in a great many places during the year (see VII, *Municipal Government*). A

survey of vice conditions is planned for Delaware, and in Maryland a state-wide commission has been appointed by the Governor. Many societies for promoting social and moral hygiene have been formed in Delaware, Kentucky, Washington, and other states. Registration of venereal diseases has begun in New York City, and Nebraska has a new law against immoral shows.

In Winnipeg, Manitoba, the Home Mission Board of the Presbyterian Church has established a Social Service House to help young girls who seem to be in moral danger. The House receives girls just entering on a life of vice, so that they may not have to be dealt with by the police.

An ordinance in Portland, Ore., known as the "tin-plate ordinance," provides that all lodging houses, hotels and apartment houses shall have the owner's name posted in front of the building; a campaign is going on in New York for a similar ordinance in that city. Several cities are regulating dance halls, providing for police inspection, and prohibiting the sale of liquor in connection with them (see XVI, *Recreation*).

The International Anti-White Slave Association has an office in Denver; its purpose is to combat the evil by education in eugenics and sex hygiene, beginning with parents, and by enforcement of existing laws and creation of new ones as needed. White-slave laws were enacted during the year in Maine and Missouri.

California has now a red light injunction and abatement law, which declares houses of prostitution and assignation to be nuisances, and holds responsible both the proprietor and the owner of the building. The law is almost identical with the laws of Iowa and Nebraska; a similar law was also enacted in Washington. A recent election in Los Angeles insures that the policy of vice suppression which was inaugurated six years ago will be continued.

Child Welfare.—The developments during the year to be reported under this heading are largely in the direction of more efficient coöperation between private and public agencies; among these may be noted the establishment of a Children's Aid Society in Birmingham, Ala., to work with the Juvenile Court and the Detention Home; the use of the Board of Probation Officers of Arizona to act as a home-finding agency for dependent children; a more complete supervision of children's institutions in California by the Board of State Charities, which is to issue licenses to approved institutions; a similar provision in Nebraska, in which the board must visit all children placed in homes and remove those found in undesirable places; and an extension of authority of the Ohio Board of State Charities has been made to include inspection of placed-out children.

Several other states have taken advanced steps in child welfare. Indiana has established a state Dependent Home for normal children who are public wards. The state Board of Corrections and Charities of Missouri has been authorized to conduct a children's bureau. In Virginia the state Board of Charities conducts a placing-out agency for both white and colored children; many of the latter have been taken out of jails and placed out successfully. Washington has established a state Humane Bureau; its especial work is the enforcement of the laws for prevention of wrongs to children, idiots, imbeciles, and insane. For crippled children, Indiana is helping to support a ward in a new hospital in Indianapolis; Michigan is to establish a training school; and Wisconsin has had its state Board of Control make a partial census of cripples in the state with a view to similar action.

Child welfare leagues have been established at Jacksonville, Fla., and in Louisiana; and juvenile protective associations at Grand Forks, N. D., and at Spokane, Wash. Numerous child welfare schemes are reported from Hawaii, including a home for non-leprous children of lepers. Child welfare exhibits have been conducted at Peoria, Ill., and Louisville, Ky. A notable new departure is the juvenile and humane department in the Police Department of Seattle, Wash., planned for combined rescue, protective, and humane work. The hospital of the University of Michigan is required to give medical or surgical treatment to children with some curable malady

when their parents are unable to provide proper care and treatment.

A bill of rights for childhood which was promulgated by the Indiana Children's Aid Society, a society whose purpose is to aid children before disaster, not to rescue them after it, has been adopted by many similar societies; it declares that every child has an inalienable right to be born right; to be loved; to have his individuality respected; to be trained wisely in body, mind and spirit; to be protected from evil persons and influences; and to have a fair chance in life.

The gross frauds upon orphans in Oklahoma, reported in the YEAR BOOK for 1912 (p. 433), have at last come to the notice of the Federal Government and radical reforms in the administration of the estates of Indian children have been ordered.

The discussions on child welfare at the Massachusetts State Conference of Charities referred to the need of recreation and good standards of food in the country, and the city dwellers questioned the generally accepted theory that child placing in rural communities is the perfect method. On the other hand, people from the country deplored the evil done to rural schools and communities by the incursion of city children who bring with them habits and influences that are hurtful.

At the National Conservation Exposition at Knoxville, with the cooperation of the National Child Labor Committee and other organizations, there was an exhibit of child-welfare work. The length of the exposition, two months, permitted the arrangement of a series of special days to emphasize particular aspects of child-welfare work, the examination of a large number of children, and the opportunity to work up an interest in the surrounding country. In connection with the exhibit a conference was held on children's health. The American Association for the Study and Prevention of Infant Mortality held its annual meeting in Washington, D. C., with a wide programme of nursing, pediatrics, eugenics, obstetrics and some educational topics.

Prevention of Juvenile Delinquency.—While probation and other non-institutional methods continue to gain in favor, new institutions for delinquent and wayward children are still reported from many states. The terms "reform school" and "juvenile reformatory" are, however, obsolete or obsolescent, the preferred terms being "industrial school," "school for wayward girls," "state training school," or simply "state school for boys" or for girls. In North Dakota the name of the institution has been changed by legislative enactment from "State Reform School" to "State Farm and Mechanic Arts School." The changes of name indicate, at least, a desire to change methods.

Some significant changes of law and method and of control are noted. In some states the age limits of reception and discharge have been raised; in some others these limits have been lowered. In Idaho and Washington the schools for delinquent children have been placed under the educational boards, instead of those of charity and correction. In Oregon, institutions caring for incorrigible and wayward girls are now supervised by the state Board of Health. More complete sex separation by distinct institutions has been secured in several states, and the tendency seems positive in favor of complete separation on sex lines. Many reforms are reported, some of which are evident fruits of greater public interest, and a number of interesting new laws bearing on delinquent children have been enacted.

In Arizona the commitment to the Industrial School is now until 21 years of age. In California a new state training school for girls will make it possible to remove girls from the school at Whittier; a new institution is to be built for boys on the modern cottage plan, and at the Preston School the new superintendent has introduced self-government, within limits, with good results.

Inmates of the New Jersey Reformatory for Boys at Jamesburg are now classified as normal or subnormal; this is regarded as the beginning of more scientific treatment of defective-delinquents in that institution, and is undoubtedly due to the great attention now being given in the state to the care and control of mental defectives.

In Maine all hospitals receiving financial aid from the state are required to receive as patients without charge inmates of the state schools for delinquent boys and girls when the superintendents of such schools shall notify them of the necessity.

Beginning in July, 1914, a new law will make a remarkable change in the dealings with children of the state of Ohio. Any delinquent minor, instead of being committed to any certain institution, will be committed to the Board of Administration. The board has been authorized to erect an institution to which all children, defective, delinquent or dependent, are to be committed, to be afterwards assigned to an appropriate institution or otherwise dealt with. The prospect seems that when all the defectives are segregated and in proper care, and the normal children have been placed in good homes or schools, the few remaining delinquents will probably be such as can best be dealt with by probation, so that the old-fashioned juvenile reformatories will be no longer necessary.

Birmingham, Ala., now employs a welfare worker, paid from the state treasury, to look after women and girls going through the courts. All delinquent and dependent children in Arizona are now under the jurisdiction of the judge of the Superior Court. In Colorado it is forbidden to give publicity to court cases in which children are involved.

Juvenile Courts. — Many amendments are reported in different states, most of them having the effect of strengthening the law, increasing the number of probation officers, etc. In Washington the juvenile court is now authorized to make commitments to the state Home for the Feeble-Minded. In Indiana and Missouri amendments to the law extend the system of children's courts to every county of these states. In Ohio the jurisdiction of the juvenile courts has been extended; the age limit of children has been raised from 17 to 18 years, and any person contributing to the delinquency of a child is amenable to the juvenile court. Alaska has juvenile courts in connection with the present commissioner's courts, but these apply only to white children, although efforts have been made to include Indian children.

For the first time since they were established, the children's courts in New York City, beginning with January, 1913, have had something like permanent judges to preside over them.

CORRECTION

The Criminal Type. — A careful study of some thousands of criminals has been concluded in England at the Parkhurst Prison.

The conclusion set forth by Dr. Goring, the medical officer of the prison, in a monograph which is of extraordinary scientific and human interest, is to the effect that criminals as individuals possess no characteristics, physical or mental, which are not shared by all people, the only difference being one of degree.

Dr. Goring's measurements do not bear out the theory propounded by Lombroso that there is a definite criminal type, and that it is even possible to know the various kinds of criminals by their faces. The general characteristics of the English convict are those of a defective. He is defective in physical strength, weight, stature, and mental capacity. It is found that in height and bodily weight he is very markedly inferior to the general average of the population. This is the only solid fact ascertained which might suggest the existence of a criminal type. The different classes of criminals, Dr. Goring shows, do not differ markedly among themselves or vary much, except in height and weight, from the standard of population, while hospital inmates who are quite free from crime, but of weak physique, in many characteristics signally resemble the malefactor. Thieves and burglars, it is true, are unusually puny, while fraudulent offenders are commonly as tall and heavy as the average man, but this is because the fraudulent offender is drawn from a higher class of the population than the thief.

The remarkable inferiority of the criminal in height and weight is ex-

plained very simply. Stature and physique are endowments which enable a man readily to obtain an honest occupation. "We might easily produce statistics," says Dr. Goring, "to show that all other things being equal, the poor man's physique serves frequently as the casting vote determining whether he can easily find employment or be unemployable." It is for this reason apparently and no other that crime is to some extent hereditary, low stature being transmitted by parents to their progeny.

The criminal's health appears to have no effect upon his proclivity to crime, nor is it true that drink is the cause of crime, except in the case of violent offenses against the person. Social inequality, often paraded as the true cause, appears to have even less to do with making a criminal, but a low standard of intelligence, often amounting to mental deficiency, has been found in the vast majority of criminals. Dr. Goring concludes: "The chief source of the high degree of relationship between weak-mindedness and crime probably resides in that fact. The thing which we call criminality and which leads to the perpetration of many, if not most anti-social offenses to-day, is not inherent wickedness, but natural stupidity." His monograph is epoch-making in that it is the first attempt to arrive at results in criminology by the statistical treatment of facts, which in a crude form are without scientific value.

Lynchings.—During the ten months of 1913 ending Nov. 1, there were 45 lynchings in the United States, four less than during the same months of 1912. Of the victims only seven were charged with rape; with one or two exceptions they were negroes. In one case the mob was divided in opinion as to the guilt of the accused and a later mass meeting condemned the lynching. In several cases innocence was proved a day or two later. The sheriff at Spartansburg, S. C., in spite of the fact that dynamite was used, prevented a mob from lynching a negro accused of assaulting a white woman. The negro was later tried before a white jury and acquitted. It is notable that this occurred in a state whose Governor at the last meeting of the House of Governors, declared himself in favor of lynch law.

Penal Legislation.—In California it is made a penal offense to expose or to threaten to expose a paroled prisoner. A rigorous law also prohibits the use of cruel and unusual punishments in penal institutions, especially the strait-jacket, the gag, the thumbscrew, and tricing up. Every warden is to keep a punishment record, in which each instance of punishment must be entered.

In Indiana a fine, which may be as high as $5,000, with imprisonment for six months in the county jail, may be imposed on a person contributing to the delinquency of a ward of the girls' school; very heavy additional punishments are authorized for the crime of rape.

In Nebraska unnatural vice is punishable by imprisonment up to 20 years; a similar law has been enacted in Oregon.

In North Carolina the bigamy law is made more severe, while the minimum sentence of a convicted horse thief is reduced from five years to four months.

In Nebraska it is now a felony to furnish cocaine, morphine or similar drugs or intoxicating liquor to any inmate of a penal institution, or to supply the same to an employee for the use of inmates, except on a prescription of a practicing physician and the consent of the institution authorities. The penalty is one to five years in prison. The same penalty is provided for furnishing firearms or other weapons to an inmate.

The electric chair has been substituted for the gallows in Arkansas, Indiana, and Nebraska. In Washington capital punishment has been abolished and the penalty for murder in the first degree is life imprisonment. (See also IX, *Criminal Law.*)

Penal Institutions.—A course at the Harvard Summer School on the psychology of the abnormal was conducted by Dr. William Healy. It was intended for those who, whether in public schools, juvenile courts, prisons or other institutions, have to do professionally with abnormal individuals. A notable appointment has been that of a penologist of national reputation,

from another state, to the most important position in the Prison Service of Massachusetts, the chairmanship of the Prison Commission. Mr. Randall, the appointee, has been superintendent of the Minnesota State Reformatory for many years. He will have the opportunity to carry out the new law providing for the use of prisoners in reclaiming waste land and in cultivating it to produce material to be used in other state institutions, and for the sale of the land after it has been reclaimed. The report of the Massachusetts Commission, 1912, shows a decrease in commitments to prison of 1,424 from the preceding year. The actual prison population also had decreased at the end of the year, from 6,664 in December, 1911, to 6,086 in December, 1912. The decrease in number has been steady since 1907, when the number was 7,599.

The Governor of Delaware believes that the reason that the state is comparatively free from professional criminals, notwithstanding that the city of Wilmington is conveniently situated between and near four great cities, is because the professional is shrewd enough to avoid the whipping-post. A jail sentence means little to such men, but they cannot stand the humiliation and physical pain of the lash. That the Governor voices an opinion of the people may be inferred from the fact that at a recent meeting of ministers in Wilmington, an unsuccessful attempt was made to pass a resolution against the whipping post.

The turmoil in the prison situation in New York State continues, and other disasters have occurred. A fire in the shops at Sing Sing on July 22, causing a loss of $150,000 to $200,000, was followed by a mutiny and strike of several hundred prisoners. For nearly a week some 300 prisoners were locked in their cells. A grand jury investigation of Sing Sing resulted in the removal of the warden on charges of improper administration, especially in doubling up prisoners and mingling the diseased and well. A report on Sing Sing, published in the New York *World* of Aug. 24 and reprinted in *The Delinquent* for September, shows that no condemnation of this prison hitherto published is too severe. The report records that the present warden is doing all he can to improve conditions, and that already he has improved the discipline and cleanliness of the place.

It is reported by the American Prison Association that five per cent. of all convicts received at the Indiana State Prison are insane as the result of disease.

The German Government has sent four commissioners to study the penal institutions, especially the reformatories, of this country.

Prison Management and Prison Reform.—From nearly every state come reports of improved prison management; in most cases the improvements are toward a milder, more humane system of discipline, greater care for health, better food, and a recognition that convicts are human beings, and neither beasts nor machines. Special notes on more humanized systems come from California, Iowa, Michigan, Nebraska, and Ohio.

Compensation to prisoners for their labor in prison is now the law in at least six states. In the Kansas prison a daily wage, varying with the capacity for labor, is provided, half being used for dependents where there are such. The same is done in Nebraska, Ohio, and Wisconsin. In Delaware, for the convict labor that is used on the roads, the county pays the workhouse trustees 75 cents per man per day, part of which goes to the prisoner. In California a new law provides for an indemnity to prisoners who have served sentence on a proved unjust conviction. Wisconsin also has a new law providing for compensation to innocent persons sentenced to prison through a miscarriage of justice. The maximum sum that can be awarded in such a case is $5,000.

Strict medical inspection of each new prisoner received and all necessary treatment to put him in as perfect health as possible, is the rule in California, and the old prisoners are receiving the same examination and treatment as rapidly as possible. The grading system has been introduced.

In Nebraska the desperate prison mutiny, which was reported last year, disclosed many evils which new laws and methods are being employed to remedy. The prisoners are now

graded, a good school is conducted, the food and clothing have been improved, and great care is exercised to exclude liquor, drugs, and weapons (see "Penal Legislation," *supra*). The Board of Control keeps an account with each prisoner and sets aside half of his wages to be paid monthly to his dependents, if any, or invested for his benefit, and paid to him in three quarterly payments after his release. Many new buildings are in progress.

An act directs the Governor of Ohio to appoint a commission to select a rural site for the penitentiary, and makes an appropriation for land and buildings. It is expected that the sale of the present site in the city of Columbus will bring a large return.

After a week spent in the State Prison at Auburn, where he was treated in every way as a convict, even undergoing confinement in the dark cell for a slight infraction of a prison rule, Thomas Mott Osborne, the new chairman of the New York State Prison Commission, has made a series of recommendations for reform in prison management which are very instructive. Among his recommendations are that the men's personal dignity shall be respected at least to the extent of being allowed to bathe in privacy; that the bathing should be more frequent than once a week for men engaged in hard manual labor; that convicts should be allowed three suits of underwear so that they would not have to remain without change for a number of days and nights; that prisoners should be allowed to read newspapers and magazines; that they should be allowed to write more frequently and not be deprived of their friends and family entirely; that tea should be abolished and coffee improved, although the rest of the food is good; that the punishment cells in which not only the amount of bread, but also the amount of water, is limited to a small quantity show a system which is brutal and unnecessary; that there should be some grading in punishments, so that the punishment should not be the same for whispering as for assault. Of the general prison system, Mr. Osborne says:

> I am more than ever confirmed that the prison system is singularly unintelligent, ineffective and cruel. . . . The prison system is absolutely a form of slavery, and all the great truths enunciated by Lincoln and others against negro slavery are just as applicable to prison slavery. It takes from the convict his individual initiative and freedom of action and he becomes an irresponsible automaton. When he returns to the outside world, therefore, he finds he is unable to resume his own initiative and to be the guide of his own destinies.
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> From the first moment that a man arrives in prison he is made to realize that he is no longer an individual human being. He is only one very unimportant unit in a community which is undergoing penance for certain crimes, and the penance differs only in the matter of duration. Each man ceases to be an individual and becomes a moving automaton in a gray suit.

The Governor of Massachusetts recommends three important changes in penal affairs: first, more buildings for defective-delinquents; second, expert alienists to assist in proper treatment of female defective-delinquents; and third, the making of a report by the Prison Commission upon the best methods of providing for those now in prison. He also favors prison schools in five houses of correction, plans for the conduct of which should be devised by the state Board of Education.

Henceforth, soldiers who are in prison for purely military offenses, not involving any criminal act, will be made eligible for reënlistment in the service, thus giving them an opportunity to gain honorable discharge. They are to have military training during their sentence and will be allowed many soldiers' privileges. Organizations to be known as disciplinary companies will be made at the two military prisons. A sharp distinction will be made between prisoners convicted of crime and those who have violated military regulations. The men will be known by name instead of number, will be permitted to converse and will be separated from the other prisoners. They will have a thorough course of military training.

Prison Amelioration.—That convicts are not sent to prison to be punished, but that they are punished by being sent to prison, is becoming an accepted doctrine. Incidentally this leads to numerous efforts to ameliorate their condition while in bondage. At the Illinois State Penitentiary, for example, there is a private bathroom

where each squad bathes weekly, at stated hours, and none but men belonging with this squad are allowed in the room. Prisoners are allowed to receive daily newspapers and magazines when sent direct from the publisher. Eighty per cent. of the men subscribe to some paper or periodical. First-grade prisoners are allowed to write one letter each week, second-grade men one letter every two weeks, and third-grade men one letter per month. The food is substantial, well-cooked and served, and each man gets as much as he can eat. During the Spring and Summer months all inmates are allowed one hour's recreation each pleasant day. The new recreation field outside the walls of the prison, where first-grade men will be allowed to indulge in baseball, quoits, and similar games in pleasant weather, is about completed. The old straw mattresses are being destroyed and replaced with first-class kapok mattresses as fast as they can be made. Inmates are allowed to talk in the shops when necessary, when marching through the yard and in their cells, freely. Dead silence is no longer enforced. These and other reforms in the way of amelioration have been put in effect, beginning in May, 1913; the result is said to be that while in April the punishment record was about 130, in September less than 30 men were punished for violation of the prison rules.

Prison reform in the Ohio penitentiary begins with the treatment of the new convict on reception. The warden believes that no man can be reformed unless he is treated with some degree of respect. Arrivals are now carried to the privacy of the deputy warden's office and searched. They get a little friendly talk and are told that if their conduct is good they will have an excellent chance of getting out with the minimum term under the new indeterminate-sentence law. Prisoners are no longer exhibited to visitors. A record is kept of the conduct and progress of every prisoner. Solitary confinement has been abolished. The prisoners are allowed to play baseball in the mornings, and they have organized a band to play at meal times. All of the warden's reforms, though, are not of so lenient a nature. He requires a systematic search of the cells every day, he requires every able-bodied prisoner to do some sort of work, and he has barred visits from lawyers of the ambulance-chasing type, and has appointed a special investigating officer to consider all applications for pardons and paroles. He has stopped friends and relatives of convicts from sending baskets of food and dainties into the prison; he found that many of the prisoners were getting cocaine or opium by this means, so he cut off the supply and sent the "dope" fiends to the hospital for treatment. The warden has ordered the guards not to smoke on duty and has prohibited their congregating in the prison yards. He has installed the finger-print identification system in the Bertillon department. He allows liberties to first-term prisoners which are not allowed to "repeaters." Discharged prisoners are fitted with a dark blue suit, such as any self-respecting business man might wear. Every discharged prisoner is also given $10 in cash.

Libraries are found in most prisons. Indiana reports excellent results from the coöperation of the state Library Commission with the prison managements. A comparison of the use of the library in the Reformatory for Men with a public library of about the same size is instructive. In the Reformatory with a library of 9,300 volumes, an income of $1,000, and a population of 1,177, the annual circulation was 176,714. In the public library of 9,800 volumes with an income of $3,000 and a population of 8,500, the circulation was 36,000. With the same number of volumes, one-third the income and one-sixth of the population, the reformatory circulates nearly five times as many books as a good public library. Nearly all the libraries of the penal and correctional institutions of the state have been reorganized under the supervision of the Library Commission. The same is true of most of the state benevolent institutions.

Motion pictures are a regular feature of the Sunday schedule in the Montana penitentiary. Admittance to the show depends on the merit marks to the convict's credit, so that the privilege becomes an aid to discipline.

The time will come when temporary loss of privileges will be the only form of punishment necessary in prisons; then the disciplinary officers will be the ones most eager to invent new privileges.

One of the innovations made in the Federal Prison at Leavenworth is a unique court which meets every morning in the office of the deputy warden. Sometimes there are half a dozen cases on the docket, sometimes only one among the 1,200 prisoners. The severest penalty is not what are usually called punishments, but the withdrawal of the privilege of basball tickets. There are four teams in the Prison League.

The new prison in Minnesota is to be well lighted in every part; practically one-third of the outside of the cellhouses will be of glass. The farm contains 160 acres, which includes a spring with a capacity of 1,500,000 gals. of pure cold water daily.

The citizens of Jeffersonville, Ind., gave an entertainment and dinner to the 1,200 inmates of the State Reformatory, in appreciation of their services in preventing inundation of the city by the flood of March 29 to April 5. For four days and nights these convicts worked as hard as though their own homes were imperiled and at times they risked life and limb to save property in a city where they were prisoners.

At the Iowa State Penitentiary the warden has organized an orchestra which plays during meal hours. Most of the instruments in the orchestra and in a band which is another feature of the prison have been bought by the prisoners themselves from the meager allowance the state makes them for luxuries.

Stripes were abolished at San Quentin Prison, California, except for bad behavior, on July 9, the same day the new cell block was occupied.

Public sentiment is needed to support the movement for efficient schools in the prisons. These are of recent origin, but with all their defects, which are many, they are a means of untold good. A recent paper in *The Delinquent* calls attention to them and reports on 44, of which 19 are day schools and 27 are held in the evening. Thirty-three of them have a civilian as head teacher. The main purpose of the schools is to teach the convicts to read, so that the library may be effective. In the Kansas penitentiary at Lansing a number of courses of instruction are being given to the convicts by the State Agricultural College. Every extension course offered to the citizens of the state is offered to any prisoner who cares to take it. A fee of a dollar, which is only a fraction of what is charged others and which does not cover the postage on the necessary correspondence, is asked, thus avoiding the appearance of an act of charity. The courses available to prisoners, which are under the direction of the heads of the college departments, are agriculture, engineering, and home economics. Specific phases of each are dealt with, such as soils, stock breeding, farm blacksmithing, farm drainage; carpentry and building, shop mechanical drawing, shop mathematics, gasoline engines, cooking, sewing, home sanitation. The work offered in these courses is intended not to supplant, but to supplement, such educational facilities as are furnished by the penitentiary itself. The penitentiary is visited at intervals by one of the extension professors, who talks with the men personally, endeavoring to interest them in extension courses, helping them decide what lines to pursue, and encouraging them in their study. The prison chaplain is giving vigorous assistance in the work.

Prison Labor.—The year 1913 will be memorable in prison affairs for the remarkable development of out-door labor for convicts. As a necessary condition of this has come the extension of the so-called honor system, which is really an outgrowth of the plan of making "trusties," which prisons have long practiced. The out-door labor seems almost equally divided between road making and farming. The reports below on the honor system and road making and farming by convicts cannot be strictly confined to their subjects, since the different kinds of work are done at the same prison and sometimes by the same gangs at different times.

The contract and lease systems are slowly dying out. One or two spectacular attacks on them have been

made during the year. Many governors in their annual messages of 1913 advocated the abolition of contract labor and the substitution therefor of road making, produce raising, and industries. Another recommendation frequently made was that of a state penal farm for misdemeanants to take the place of the county jail as a place of serving sentence.

In Rhode Island actions have been brought by an ex-convict against two prison labor contractors to recover wages for work performed for them under contract labor in the State Prison and the Providence County jail. The claim is made that compulsory labor of this kind is slavery and that as the constitution of Rhode Island prohibits slavery, the prison-labor contracts are unconstitutional. Article 1, section 4, of the constitution reads: "Slavery will not be permitted in this state." The constitutions of the United States and of all the states except Rhode Island, Maryland and Vermont, in substance prohibit slavery or involuntary servitude except as punishment for crime, but no such exception is in the constitution of Rhode Island. The case is now in the State Supreme Court. A similar case is pending in the Federal Circuit Court in Boston.

In Connecticut a commission has been appointed to study contract labor in the state prison and county jails. Contract labor has been finally prohibited, usually after a long struggle, in Nebraska, Oregon, South Carolina, and Washington; in New Jersey and North Carolina the laws provide that when present contracts expire there shall be no renewals or new ones made. In Iowa, Maryland, and Virginia, efforts against contract labor appear to have reasonable prospects of success. In Missouri contract labor, which was to be abolished, has been given a new lease of life.

The Federal Prison at Atlanta has a model poultry farm, begun in May, 1912, and highly successful. The birds are fancy stock, not utility fowls, although the prison hospital and tuberculosis camp are supplied with eggs and poultry from the farm.

In Nebraska a new law provides that the labor of convicts shall be used as far as possible in making articles for state use. Convict labor may be let to state institutions or to municipal authorities, in which case the wages must not be less than 75 cents per day, of which one-third shall be credited to the convict. An appropriation was made for a binder-twine plant to be used if the Board of Control deem advisable. Wisconsin has a new law for employing convicts on the state-use plan, also in road making.

One of the notable pieces of prison work of the year was the building by inmate labor of the enclosure wall at the New Jersey State Reformatory at Rahway. It is 25 ft. high and 3,300 ft. long. In its construction 1,000 cub. yds. of earth were excavated, 225,225 ft. of steel reënforcement erected, 115,500 binding rods placed, and 6,600 tons of concrete handled. The work was completed in 346 days at a cost of $21,998, the estimated cost by contract being $55,000. During the building the inmates mixed and placed the concrete at the rate of nine tons per hour.

During the floods in Mississippi in April many convicts were employed on the levees, and their work undoubtedly saved the levees from breaking in a number of places.

A force of prisoners from the Western Penitentiary is engaged in building a new prison in Pennsylvania, which the Governor and warden have resolved shall be a model.

Virginia still has contract labor, although with a higher rate of daily pay than formerly. The road force is increased to 600 men. All jail-sentenced men work on the roads. A new law allows a limited number of men to be employed in limestone grinding.

The Honor System.—The honor system is spreading rapidly, with local modifications, throughout the nation. Of the 1,700 men in the penitentiary at Columbus, O., about 300 are employed outside the walls, 24 being about the buildings. The rest, in gangs varying in number from 40 to four, have been at work in quarries, farms, experimental roads and grounds of other institutions, such as the schools for the deaf and blind. Some of the smaller gangs have as foreman a selected convict: none is in charge

of armed guards. Most of the gangs are lodged in camps at the places of work, the minority returning to the prison to sleep. Some of the gangs work in places 40 miles away from the prison. Of the first 303 in honor squads since April, 1913, 18 have violated their trust and walked away, nine of whom have been returned, making less than three per cent. recorded as escapes. The results are so satisfactory that the plan is accepted as a regular part of the prison system.

Since the passage by the Illinois legislature of the Tice bill, which became effective July 1, the warden of the Joliet State Prison has organized a group of road-workers from among the prisoners. The experiment is now being tried out under the honor system. A gang of prisoners were at work near Grand Detour when a fire broke out at a large dairy farm in the vicinity. The gang foreman led the convicts on a hard run to the farm. The men were breathless when they arrived. The barns and several outbuildings were in flames. A bucket brigade was formed and by hard work the fire was prevented from reaching the farmhouse. The barns and contents were destroyed, although the convicts made heroic efforts to remove the horses. One convict climbed through the flames to the top of the windmill and with the aid of a wet blanket extinguished the flames in that structure. After the fire they returned to camp.

When the honor system of prison labor, with outdoor work for the prisoners, was begun in the far West, sceptics said it might be possible, under exceptional circumstances, to use it with success, but that it was certainly unsuited to the crowded centers of population. But Columbus, O., is in a densely populated section, and Great Meadows, N. Y., is only 70 miles from Albany and nearer to many other towns. Of course no prison management has yet ever attempted the experiment of putting all their men on honor. Perhaps a larger proportion are so placed at Great Meadows than in any other prison, but that is because the prisoners there are a picked lot, transferred from Sing Sing, Auburn, and Clinton, as being those most reformable. Yet, with all necessary qualifications, the facts are sufficiently remarkable and the consequences have been sufficiently satisfactory to inspire a profound hope that the day is dawning when we shall learn how, by sane and normal methods, materially to reduce crime and its consequences.

The honor system was reported in the last issue of the YEAR BOOK as having been used to a small extent at the new state prison at Great Meadows, N. Y. During 1913 it has been greatly extended until now a large majority of the convicts are employed on the farm and otherwise outdoors, and there is as yet no wall around the prison.

In Oregon so many so-called "honor men" are working outside the walls that an outside dormitory has been built for them. One reason alleged for this is that the honor men have caused trouble by bringing liquor and drugs into the prison for other prisoners.

Road Making by Convicts.—New or amended laws authorizing convict labor on roads are reported from Delaware, Indiana, Maine, New Jersey, North Carolina, Colorado, Ohio, Virginia, Washington, and Wisconsin. So far, wherever the plan has been tried, the results have been fairly satisfactory; in some states the satisfaction has been marked, notably in Colorado, North Carolina, and Virginia.

The Commissioner of Roads of Kentucky has made a study of the results of convict road work in various states, his conclusions being highly favorable to the plan. His inquiry covered the states of Georgia, California, Colorado, Illinois, Kansas, Louisiana, Michigan, Minnesota, North Carolina, Oregon, Virginia, Washington, and Missouri. He declares that the movement is growing. In every case the sanitary benefit to the men employed is great, the discipline is easily enforced. The work is very profitable to the community and of the means for getting good roads this is one of the most important.

In Colorado, of 800 inmates of the state prison, more than 400 are located at various camps throughout the state, engaged in road building, and the warden reports that he has demands for five times as many men

as are available. During the past two years the convicts have done $266,000 worth of work on the roads, at a fraction of the ordinary cost by contract. The labor has not competed with free labor, since the counties could not have afforded to do the work on any other plan. A large majority of the men so employed make good after discharge.

The prison camp in Sussex County, New Jersey, where the convicts are employed at road building, is said to be an outcome of suggestions made by Governor Wilson. It is marvelously successful in furnishing healthful labor that is profitable to the state and beneficial to the convict. Some prisoners have been employed repairing a public road near Trenton, and similar work has been done in Essex County with prisoners from the county penitentiary. A second state convict camp has been begun in a southern county. The first report recommends that the system be continued and developed. There was not a single case of insubordination or insolence during the test. The prisoners regard labor on the roads not as a hardship, but as a reward for good conduct. The State Forestry Commission proposes to use the convicts on the forest roads in certain parts of the state. These roads act as fire lines, and as they have been neglected recently, their chief purpose, that of stopping the sweep of forest fires, is not met. The convicts will trim the brush on either side of the roads and widen the fire lines by several feet. Among good results claimed in New Jersey are that the road work is better than that of ordinary road gangs; that the health and spirits of the men have improved; that many of the convicts who have been released have made good at steady employment found for them; that others whose terms will soon expire are looking forward to similar success; and that results on the men's characters and prospects far outweigh the economic advantages to the state.

A report from the Commissioner of Roads and Revenues of Fulton County, Georgia, which includes the city of Atlanta, is full of praise for the road work done by convicts, as being good for the county and better for the convicts, whose health and vigor are maintained at a high standard.

Prisoners are now employed at road making in Michigan, Oklahoma, Washington, Iowa, New York, and many other states. The convicts employed at road work in Illinois will be dressed like ordinary laborers and have many privileges, including smoking and playing games. They will work nine hours daily, and for every three days' work on the road, one day will be deducted from the sentence in addition to the regular good time allowance. They will work under overseers but without armed guards.

Farming and Forestry by Convicts.—Arkansas has bought a prison farm of 8,000 acres, and contract labor and leasing of prisoners are to be abandoned. Arizona also will have a large farm for its convicts and will also work prisoners on the public roads of the state. In Iowa, although a proposition for a state farm has been defeated, provision has been made for district custodial farms and the farms at the state prison and the reformatory are to be enlarged; the prison at Fort Madison will have 500 acres. The Michigan State Prison is to remove to a larger acreage so as to employ a number of convicts at farm work. A prison farm to employ 300 convicts has been begun in Illinois. The land is one mile from the Joliet prison and has been purchased as a new site for that institution. The farm produce will be used by the state. Eventually 500 men will be employed in farm labor. North Carolina is working its great farm of 7,000 acres with convict labor; life-term prisoners are working in the fields. Tennessee has bought 2,312 acres for $196,520 to add to its prison farm, making the total now 3,432 acres. The purpose is to produce all the food supplies for the prisoners.

In Ontario the progress of the prison farm at Guelph has been continuous from the first year, when 20 prisoners were employed, to the present, when the force is 325. But all the Ontario prisoners are not at Guelph, which is in central Ontario; similar work is being done at Fort William in the west and at Whitby in the east; a total of 440 men are now

working in the open and giving full percentage of efficiency.

The tract of 1,500 acres of forest land at Dannemora, N. Y., which was set aside 60 years ago for the use of the prison, has been neglected and abused until 1913. Under the skilled management of the Director of Forest Investigation, a force of convicts have cleared up much of the land, have marked enough waste timber to yield the state a net revenue of nearly $50,000, have materially reduced the fire danger, and have replanted a large area. The planting has been done at a remarkably low cost and the experiment has demonstrated the possibility of employing profitably a large number of the state's convicts on the millions of acres of forest land which the state owns. The revenue might easily be $3,000,000 per annum and each cutting would leave the forests in better condition than before. The work has been proved to be a useful one for the men.

Pardon.—At the 1912 meeting of the House of Governors, the principal subject of discussion was the use and abuse of the pardoning power. Several governors of southern states were seriously criticised for excessive pardons. The Governor of South Carolina, who had pardoned 400 persons in two years, said he hoped to make the record 800 before his second term expired, his intention being by wholesale pardons to break up the contract system and especially to abolish a hosiery mill at the penitentiary, which he declared to be "a tuberculosis incubator." Immediately after the conference the Governor of Arkansas pardoned 360 convicts in one day. This he intended to be a death blow to the convict lease system, which he had vainly tried to persuade the legislature to abolish. Whatever may be thought of the method, the effort was successful, and in April the new Governor signed a bill which abolished the lease system, established a state farm, and replaced the former board of prison commissioners, consisting of state officers who had heavy duties in other directions, by a Board of Penitentiary and Reform School Commissioners, who are to give their whole time to the new duties.

A symposium of governors on the question of pardons was conducted early in the year by the secretary of the National Prisoners' Aid Association, suggested by the many pardons issued in several states toward the end of 1912, some of them to notorious criminals; about 20 governors participated; a full report will be found in *The Delinquent* for March, including a statement of the existing laws on the subject in the various states. The consensus of opinion seemed to be decidedly in favor of a pardon board either as advisory to the governor, or one of which the governor shall be a member. Fourteen states have advisory boards; nine states have boards of which the governor is a member; in three states the pardoning power is administered by the governor and his council; in one state it rests with the governor and the senate; and in 16 states the governor has the sole and unconditional right to pardon, save in cases of treason and impeachment. One governor objects to the system of pardoning boards since they undertake judicial functions that cannot be successfully conducted because of the remoteness of the crime and because the board does not and cannot possess the machinery of the courts. As parole and the indeterminate sentence are better understood and practiced the need of pardons becomes less, and probably some day will be used only in cases which clearly show a miscarriage of justice.

The Board of Control of Penal Institutions in Michigan, with the secretary of the Board of Corrections and Charities, now constitute a penology commission which acts in conjunction with the prison wardens as an advisory board in matters of pardon. Missouri has now a state Board of Pardons and Paroles having jurisdiction over the paroles granted from the state penitentiary and the institutions for juvenile delinquents; the Board has three members, each receiving a salary of $2,500, one of them serving as secretary. In Arizona the legislature created a Board of Paroles consisting of the Attorney-General, the Superintendent of Public Instruction, and a citizen member appointed by these two, the governor being debarred from issuing paroles or par-

dons except upon their recommendation; against this provision a referendum petition has been filed, which will be voted on at the general election of 1914.

Parole, Probation, and Indeterminate Sentence.—The parole system is new in Arizona, but has encouraging results, chiefly that the attempts at escape from prison are diminished and fewer pardons are granted. In California the prison directors have charge of parole; they are now authorized to assist paroled prisoners, sometimes furnishing them with tools and money, for which purposes they have an appropriation of $35,000 for two years. Life prisoners in Connecticut who have served 25 years are now eligible to parole. In Ohio second-degree murderers, serving a life sentence, are made eligible for parole after serving 10 years. Maine and Maryland have each adopted the indeterminate sentence with parole for state-prison convicts.

In Massachusetts the number of probation officers for the municipal courts has been increased. Michigan has unified its probation laws, applying them to circuit, police, and justices' courts, and placing supervision under the Board of Correction and Charities. Missouri has now a state Board of Pardons and Paroles, and the office of state pardon attorney is given up. In St. Louis the system of probation has been applied to adult offenders in minor cases. In Nebraska when a prisoner is released on parole during the winter season he must be given an overcoat. A probation officer is now required for adults and juveniles in each county with 20,000 or more population. A parole law has been enacted in North Carolina applying to only two counties, but commutation of sentence for good behavior has been made to apply to prisoners in county camps as well as to those in the state prison. In North Dakota first offenders may now be released on suspended sentence and the state now employs an agent to look after paroled prisoners. In Wisconsin the Board of Control has now authority to parole convicts from the Milwaukee County House of Correction.

Although the law does not expressly say so, the Circuit Court of Louisville, Ky., has decided that a man sentenced under the indeterminate sentence law is not only eligible to parole, after serving the minimum term with a good record, but is entitled to it, and that the Prison Commission has no discretion in the matter of granting parole in the case of such a prisoner.

The Board of Pardons of Pennsylvania at a recent session recommended 110 prisoners for parole, including 39 men and two women who were serving sentences for second-degree murder. This was the first action under the new law greatly extending the parole system.

A new law in Ohio provides for a general indeterminate sentence to the Ohio Penitentiary instead of the law which prescribed certain minimum and maximum terms according to the crime of which the prisoner was convicted.

The recent Federal law allowing parole of Federal prisoners has been justified by its results, not more than three or four per cent. of the five hundred or more who have been released having violated their parole. During the three years of the law's operation the paroled prisoners have earned over $250,000. A recent extension of the law makes it apply to life-termers who have served at least 15 years.

A prison bureau for the purpose of securing work for ex-prisoners is conducted in San Francisco, by a man who has served many years in prison, but who has come out a changed character, a grave, earnest, responsible man. The bureau has been in operation a comparatively short time, but has already secured several hundred jobs for ex-prisoners.

A Federation of Prisoners' Aid Societies is reported from France. It is known as the "*Union des Sociètes de patronage de France*" and there are 130 such societies comprising the *Union*. The societies aid discharged convicts and save neglected children. Many of them conduct homes or shelters. The *Union* has organized several national and international congresses of prisoners' aid societies.

Reformatories.—Some new institutions of this kind have been opened

during the year, and many radical improvements in old ones are reported. The tendency is markedly to amelioration, better education facilities and to outdoor employment.

The Connecticut State Reformatory for Young Men was opened June 26, with a capacity of 400. Reformatories for women have been authorized in Pennsylvania and in Wisconsin.

An appropriation of $150,000 was made for the beginning of a reformatory in Nebraska. A Board of Managers for a new state Reformatory for Misdemeanants in New York has been appointed. In North Carolina the age limit at the reformatory has been raised from 15 to 18.

The Women's Reformatory in New Jersey reported as established in 1912 has been begun in a remodeled farmhouse. Everything is on a simple scale and the women are largely employed in outdoor work. New building is going on slowly, the appropriations made being used chiefly for farm stock, ditching, water supply, etc. One permanent cottage is building.

Desertion and Non-Support. — Although many states have passed stringent laws on this subject and in many cities such laws are being enforced with rigor, yet there seems to be an increase of desertion and non-support cases in almost every part of the country. In Arizona desertion of children by either parent is made a felony. In Delaware men convicted of non-support are sent to the workhouse, which pays the family 50 cents per day. The District of Columbia has a new law requiring the support of illegitimate children by their fathers. A similar law and a law against desertion has been enacted in Hawaii. Desertion of children is made a penal offense in New Hampshire; the offense is made a felony in Oregon. In Washington (state) when a man is imprisoned for non-support of a family, he can be compelled to work for the county, on the roads or otherwise, at $1.50 per day, which is paid to his dependents.

The law against wife desertion in Pennsylvania is being strictly enforced; a deserter is sent to the rock pile in the county workhouse and the deserted wife can collect 65 cents per day for his labor.

The Jewish National Desertion Bureau operates under the auspices of the National Conference of Jewish Charities. Its object is to locate missing men and to induce them to return to or provide for their families, or failing this, to prosecute them as deserters. Within three years about 2,400 cases have been handled by the bureau and in 1,700 the deserter was located. In one case the United Hebrew Charities of Chicago, after a legal struggle of five years, received for the use of the deserted family the sum of $755.43 from the deserter, who was in prison for his offense.

Inebriety.—Connecticut has a State Farm for Inebriates to which inmates are committed on an indeterminate sentence and given treatment and outdoor work. Iowa has now a custodial department for disciplinary cases at the State Hospital for Inebriates; it is in a separate building, with strict segregation.

Maine has one county farm for inebriates with a capacity of 100, in Cumberland County, and will soon have a second in Penobscot. The legislature of Pennsylvania has authorized a state farm for inebriates. In Virginia a new system of dealing with inebriates and non-support cases by probation methods is described as working out well.

Mendicancy. — Newark, N. J., has followed Baltimore, as reported in the last issue of the YEAR BOOK, in organizing a mendicancy squad and adopting similar humane and common-sense methods. Briefly, the method is that when one of the squad sees a mendicant begging, he does not arrest him, but goes with him to his home and then reports the case to a suitable philanthropic agency, if there appears any reason to suspect real need. If the mendicant appears a second time he is arrested, but even then the societies are given an opportunity to aid. As a final resort he may be sent to the workhouse. The results have been usually beneficial and the plan is popular as soon as it is understood.

Jails and Institutions for Misdemeanants.—The long hoped for law for a state farm for male misde-

meanants has been enacted in Indiana; henceforth jails will be purely places of detention for prisoners waiting trial and while they are confined in jail they will be state and not county prisoners. The new state farm begins with an appropriation of $90,000 for land and buildings; the site must be not less than 500 acres and is to be selected with a view to mixed farming, fruit growing, brick making, etc. Buildings will be erected by the prisoners. All sentences of 60 days or over must be served at the farm. Those for a shorter time in jail or at the farm, at the discretion of the judge.

Each jail in Kansas in a county for a population of over 35,000 must have a female department with a matron in charge of female prisoners. In Maine, county prisoners may now be worked on the high roads under permits from the county commissioners, but they must wear clothing which will not distinguish them from other working men. In Michigan all jails and minor penal institutions are placed under the authority of the State Board of Corrections and Charities. A state House of Correction is to be established so as to do away with county jail sentences. The Board of Corrections and Charities has authority to enforce its recommendations or to order a jail closed for cause.

A new Nebraska law permits counties of over 70,000 and less than 100,000 population, to unite in the construction of jails or workhouses. In New Hampshire jails and other penal institutions are placed under the inspection of the state Board of Charities and Corrections. In New Jersey work for county prisoners is popular, and several counties are trying to put it in operation, so that the prospect is good that workhouses or work farms will be established in each county and the jails become purely places of detention before trial.

The city of Toronto, Ontario, has purchased a prison farm of 400 acres, to be worked by prisoners of minor grade, who are not eligible for the provincial penitentiary.

Denver has established a municipal lodging house with a work test and also a system of helping applicants to find regular work. The site for the New York State Farm Colony for male vagrants has been purchased and the first cottages on the farm colony for women have been completed. At a police court in Chicago the judge holds a sunrise session every Sunday morning, usually releasing the prisoners on their word of honor to reappear on Monday morning for trial. Finger-print records to check off "repeaters" are now used in the magistrates' courts of New York City, and also in the county courts of North Dakota. Marquette, Mich., has a municipal truck garden, farmed by vagrants. The produce not consumed by the workers is turned over to the city's poor.

A plan has been worked out in New York state for supplying jails with reading matter which shall be entertaining and salutary. There are 60 jails to be supplied and committees working with the coöperation of the State Prison Association and the Russell Sage Foundation Library supply them. Carefully selected lists of 50 books each have been prepared and each committee promises to place the books on one of the lists in one county jail within six months. Occasional visits to the jails are made to arouse the interest and secure the coöperation of the officials in charge.

Support of the families of prisoners from the earnings of the prisoners in the workhouse of the District of Columbia averages about $3,750 per annum, while from men not in prison but under the surveillance of the juvenile court the amount collected and turned over to the families was in 1912 nearly $46,000, and for nine months ending April 1, 1913, it reached $35,220.

San Diego, Cal., has a municipal farm of 7,000 acres. The work of the first year has been planting trees, clearing and breaking land, building roads, laying water mains and erecting buildings. The men are misdemeanants who are serving sentence and unemployed men who come voluntarily. The two classes of men are treated alike. Ninety per cent. of them have proved faithful workers.

The improvements in the jails of

Alabama have been continued and carried to greater success in 1913. The changes amount to a revolution in the treatment of the prisoners. Thirty new jails have been built and every jail in the state has been put into a more or less sanitary condition. The Alabama law makes it the duty of the state prison inspector to inspect at least twice a year each jail, almshouse, and city prison in towns of 10,000 or more population, and to aid in securing the just, humane, and economic management of all such institutions; to require the erection of sanitary buildings for the accommodation of the inmates of such institutions, and to investigate the management of all such institutions and the conduct and efficiency of the officers or persons charged with their management. An effective weapon placed by the law in the hands of the inspector is his power to order the removal of any or all prisoners from any jail in which they are improperly cared for, or which is unsafe, to the jail of another county; and, as a large part of the compensation of Alabama's sheriffs comes from the feeding of prisoners, it is needless to say that it has seldom been necessary to use it to secure proper food or fit conditions.

In building new jails in Alabama several important ideas are being carried out. Shower baths are being installed in the male apartments, and bathtubs in the female and hospital apartments. The cells are being placed against the walls (all walls being lined with steel) with a window in each cell. The floors are of concrete on metal beams and are laid on an incline to a drain pipe. In each central corridor is installed a concrete bench and a sanitary drinking fountain. The unsanitary mattress has been replaced by the swinging canvas hammock. Other requirements of the law are hot and cold water for bathing purposes; soap and towels; clean clothes when the prisoners are unable to provide them; compulsory bathing upon entrance and once a week thereafter; semi-annual fumigation followed by two coats of white paint on all of the interior, including all cells and metal work; fumigation of jails following removal of prisoners affected with infectious, contagious, or communicable diseases; adequate janitor service; a night watchman; and kitchens to be adequately screened against flies. It is made the duty of the sheriff to keep the jail in a cleanly and sanitary condition and to prevent spitting on the floors and walls, and he is required to render a monthly report to the inspector, giving the number of prisoners, their races and sex, their physical condition, and such other detailed information as may be required.

There is a sheriff in Vermont who believes that the honor system is adaptable to the county jail as well as to the state prison. For some years in Montpelier, the jail prisoners have been employed outside the jail on the honor system with complete success. At first it was tried with local men, but gradually it has been used with men from all parts of the world and for the last three years only one man serving time has been refused the chance to work without guard. The men all work at common labor at a pay of $2 per day, the regular rate; of this amount the penal board takes $1 as the share of the state and the men have the balance. The men go to work before 7 a. m. clothed as ordinary laborers. They work two or three together or singly, scattered over a radius of 12 miles and during the last six years not a man has been lost. During the first three years, three men tried to escape, but for the past three years none have made the attempt. (*The Delinquent*, November, 1913.)

CHARITY

Public Supervision and Administration.—The tendency to centralized administration by means of state boards of control, or supervisory boards with gradually strengthened powers, is continually shown. In California the state Board of Control has been given the administration of the state subsidies for orphans and neglected children, amounting to over $400,000 annually. In Connecticut it is made a misdemeanor to refuse to comply with

written orders of the state Board of Charities which have been approved by the governor. In Kansas the state schools for the deaf and the blind are placed under a new Board of Administration for Educational Institutions; a state Board of Corrections has been created to manage the prisons, but the Reformatory and Industrial School for Boys and Girls as well as the Soldiers' Home have been placed under the old Board of Control of State Institutions.

Maine has established a state Board of Charities and Corrections, with the usual duties; the expenses of this board are to be paid pro rata by the institutions receiving financial aid from the state which come within the scope of the act. In Massachusetts any charitable corporation that fails henceforth for two years to report to the State Board of Charity will be dissolved. In Michigan the Board of Corrections and Charities has been given powers to enforce its recommendations. All maternity hospitals must now be licensed by it, and placement of children must be under its supervision. The board has received large powers over incorporate societies engaged in child helping, and it prescribes methods of placement which must be observed by such societies and institutions.

The Missouri law creating a state Board of Charities and Corrections has been amended for the first time since its passage in 1897. The board is given more authority, especially as to inspections and approval of plans. It is required to install a system of uniform accounts in state institutions. In Nebraska a non-partisan Board of Control of three members appointed by the governor and confirmed by the senate is to manage all state charitable and penal institutions. A state Board of Control has been established in New Hampshire to take direct charge of charitable and correction institutions.

In Ohio a very remarkable new law provides that all commitments to state institutions shall be considered as commitments to the care and custody of the Board of Administration, and the board is especially given the power to transfer at pleasure inmates from one institution to another. It is claimed that the new board shows a marked reduction of operating expenses over previous administrations and that positions in state institutions are now wholly independent of politics. All kinds of institutions or societies in Indiana which solicit public donations by agents must now be licensed by the secretary of state. In New Jersey there is an interesting new development in the shape of a county branch of the State Charities Aid Association with paid secretary and clerk. A North Carolina Board of Internal Improvements which has long existed without much activity has had its powers increased; it is to inspect and visit all institutions for which appropriations are made. Oregon institutions caring for orphans and foundlings are now under the supervision of the state Board of Health.

In Pennsylvania the authority of the state Board of Commissioners of Public Charities has been increased as respects almshouses; this state now has a Public Charities Association of a similar purpose to the well-known state charities aid associations of New York and New Jersey. In Virginia the state Board of Charities and Correction has given very close supervision to jails and has succeeded in removing a large number of juvenile delinquents from them, most of them colored; a great many of them have been placed in family homes with marked success.

Public Relief.—A new law in Alaska provides for a territorial home at Sitka and another at Fairbanks for white persons who have been injured or rendered destitute while at work in the territory. In North Dakota the Indiana township poor law has been copied with a proviso that cities of 5,000 inhabitants have the option of becoming autonomous poor-relief districts. The Wisconsin Board of Control is making an investigation on the methods of administering outdoor relief. In Ohio the boards of county infirmary directors, who have hitherto been the relief officials, have been abolished, their duties being assumed by the county commissioners. A change for the better in the management of the funds for relief of the poor in their homes is apparent.

The Census Bureau has in prepara-

tion a report on benevolent institutions in the United States and has issued some advance figures. The institutions number 5,397, with 380,337 inmates. For the first time the census counts the number of placed-out children. There is a marked increase of institutions in some states, while of some classes of inmates there is an actual decrease since 1904.

Care of the Insane.—New hospitals, colonies and other departments for the insane are reported from many states. In Maryland a psychiatric clinic for after care of the insane has been authorized. New hospitals for criminal insane are reported from Indiana, Ohio, and Wisconsin. Under the plan lately adopted in Ohio of collecting from the estates or from friends of the patients payment for their care, the sum of $192,000 was collected during one year.

Mental clinics have been held for several years at dispensaries in Massachusetts. They are now made legal in New York as out-patient departments of the state hospitals. This step is in line with the psychopathic hospitals or psychopathic wards in general hospitals, and with the voluntary or self-commitment of persons with incipient mental disease, which are now legal in many states. In connection with the out-patient departments, hospital social service will be carried on. The result will surely be many recoveries of early cases that without these new aids to the diseased mind would probably become prolonged or hopeless cases. In addition to its many other activities, the Free Synagogue of New York City has opened a clinic for mental hygiene and is conducting some important experiments under expert leadership.

Care of the Feeble-Minded.—A great deal of attention is being paid to this class, and even where nothing practical is being done, the needs are being recognized. This recognition is especially frequent in the southern states, very few of which have institutions. The Training School at Vineland, N. J., has instituted an extension department having for its purpose to make known the needs and secure state legislation and other efforts for the feeble-minded of all grades. This is being done by publications and by lectures and other addresses. The scope of the department is to be nation-wide. Campaigns of education are being carried on in different states. Public meetings are being held and addresses given. These are usually conducted by the state boards of charities, the work being done by the Extension Department of the Training School at Vineland.

In Ontario a government inspector of the feeble-minded has been appointed whose business it is to collect statistics of the feeble-minded and to visit them. A new law in that province provides that any female between the ages of 15 and 35 who has been sent to an industrial refuge and is discovered to be feeble-minded so that she cannot take proper care of herself must be kept in the refuge until the inspector orders her discharge.

In Connecticut an institution formerly conducted by a private association has been purchased by the state and will henceforth be supported by it. A commission has been created in Michigan to investigate the extent of feeble-mindedness and other conditions of mental defectiveness. In Nebraska a new law has been enacted to compel custodial care for feeble-minded adults, and in North Dakota compulsory commitment of feeble-minded and epileptics is provided for. A new Ohio law provides for the transfer of delinquents who are found to be mentally defective from penal institutions to more appropriate places without requiring further court action.

An exhibit of work and an educational campaign for junior mental defectives was conducted during October in New York City. This was done by the New York Department of Public Charities, which conducts a clearing-house for mentally defective children. Records, photographs, and charts constituted the exhibit, and explanatory lectures were given several times each day by noted specialists. The advertising material used emphasized the assertion that there are 15,000 feeble-minded children in the city.

After a long and hard fight in the legislature, an appropriation to complete the School for the Feeble-Minded was made by the legislature of North

Carolina just before it adjourned. The plant was begun by the legislature in 1911 with an appropriation of $60,000, while the citizens of Kinston gave a fine piece of land. At the legislative session in March, 1913, a second appropriation of $10,000 was made, and the final appropriation was made at a special session of the legislature. The money on hand will complete a plant for 130 feeble-minded children, besides room for employees, etc.

In Virginia a beginning has been made for a colony for feeble-minded women on the large farm belonging to the colony for epileptics. The state recently ordered an investigation of the feeble-minded, and a partial census showed 3,600 known and recognized cases. A campaign for something like proper treatment of this class is now in progress, the extension department of the Vineland School being called on for help.

Care of Epileptics.—A Colony for Epileptics has been opened in Connecticut with 80 patients; it will probably be enlarged in the near future. In Illinois the legislature has created a state colony, appropriating $500,000 for a site and buildings which will ultimately cost a million dollars or more. An Epileptic Farm Colony has been established in Michigan with an appropriation of $200,000 and a provision that 1,000 acres of land must be bought. A new institution in Wisconsin for the epileptic and feeble-minded has an initial appropriation of $350,000.

Care of the Deaf and the Blind.—In Arizona the School for the Deaf and the general care of that class has been confided to the state university. A settlement house for the blind, the second of its kind in the United States, has been opened in New York City. New provisions for the blind are mostly taking the form of agencies to help them to self-support. In North Dakota the state provides for the support of blind children of school age in their own homes or under guardians who find homes for them. The state Board of Charities and Corrections of New Hampshire maintains a register of the blind of the state and acts as a bureau for their benefit, having an appropriation of $5,000 per annum for the purpose. In Delaware the state makes provision for certain blind people while they are learning trades. Missouri provides indigent blind students in institutions of higher education with readers. Ohio has a new special tax to provide funds to pay pensions to the blind, the amount being limited to $240 per annum for any case; recipients must have lived in the state at least five years. Laws for report and prevention of ophthalmia neonatorum have been enacted in Pennsylvania and Michigan.

For many years a mild controversy has existed among teachers of the blind as to the use of three different systems of point alphabets, known as the Braille, the American Braille, and the New York point system. These are much cheaper and more easily learned than the old embossed Roman character printing, with which almost everyone is familiar and are used by the blind for writing as well as in printing. A committee of the American Association for the Blind, known as the "uniform type committee," has been at work since 1905 trying to decide which, if any, of the three systems should be universally adopted. At a convention of the Association in 1911 a fund was raised to enable the committee to make a thorough test and two skilled agents have visited homes, schools and shops in the United States and Great Britain, testing 1,200 blind persons in one or more of the three systems. The provisional report of their work has been made: Their conclusions are to recommend a modification of the Braille, which it is now hoped may be standardized and result in great convenience and economy, especially in the printing of books and magazines; one of the latter is printed in duplicate at the present time.

The Campaign Against Tuberculosis.—Many new hospitals and sanatoria and many enlarged and additional buildings at old institutions of the kind are reported. State health boards are establishing tuberculosis departments. In many states the work is passing over from the state proper to the counties or to district organizations covering several counties. Among new laws one, in Florida, aims to prevent marriage of tubercular people; in Colorado a law redefines and in-

creases the duties of local health officers to protect people against the disease. Arizona has stringent enactments against tubercular immigrants; in North Dakota counties are empowered to appropriate funds for the campaign; in Oregon compulsory report of cases is enacted; in Wisconsin a new law allows court commitment of patients who have violated the orders of the Board of Health and who are dangerous carriers of the contagion.

The state Anti-Tuberculosis Commission of Delaware has made sanitary inspections of certain wards in Wilmington. In Indiana every county but four has a tuberculosis association, and the state association has an office in the State House. Open-air schools have been established in many cities; in some by anti-tuberculosis commissions or societies, in others by boards of education. In several cities work against tuberculosis begun by private societies has been taken over by the city.

Recent public opinion on tuberculosis prevention is shown by the results of recent referendum votes. A referendum on a county tuberculosis hospital in eight towns in St. Lawrence County, N. Y., was carried by a vote of three to one. A referendum in Chicago by which nearly a million dollars was appropriated for a tuberculosis hospital was carried by a vote of 167,000 to 39,000. One hundred and twenty-five thousand dollars was appropriated for a municipal sanatorium in Seattle, by a vote of 39,000 for to 8,000 against. Winnebago County, Wisconsin, voted a county tuberculosis hospital by a total vote of three to two. The taxpayers of the village of Peekskill, N. Y., voted 261 to 221 to employ a visiting nurse. Bayshore, N. Y., voted to employ a school nurse after the school board had refused to employ one.

Voluntary Philanthropic Agencies.—A notable gift to the New York Association for the Improvement of the Condition of the Poor is announced as probably the largest individual donation ever made to an established society. The sum is $650,000 and its purpose is to create a department of social welfare which is to undertake a social programme of preventive and constructive measures; the programme is to include among others activities intended to prevent sickness and thus diminish poverty. The donor indicates the probable need of co-operating with public authorities and with existing agencies having similar objects, and also the advantage of devoting some time and money to research, so as to make sure that proposed measures will accomplish the objects sought to be attained.

At a meeting of the American Academy of Social and Political Science, the "Art of Giving" was discussed as an exact science. The principal speaker declared that during the year 1912 gifts totaling nearly $267,000,000 were reported by the press, and that for 12 years the total of notable gifts has exceeded $100,000,000 each year. The discussion which followed contains much valuable advice to prospective givers.

A great many new associated charities or similar organizations have been organized during the current year, especially in the states of Arkansas, Connecticut, Florida, Indiana, North Dakota, South Carolina, Virginia, and in the Hawaiian Islands. In Tennessee and Virginia associated charities have been organized by colored people for work among their own race in connection with the other charity organizations. Several new central councils of social agencies have been organized, especially in the far West and in the South.

In Manitoba the city of Winnipeg has established a civic charities bureau to inquire into the character of organizations which appeal to the public for money. In many places the associated charities has a visiting nurses' department, but in Bristol, Conn., the visiting nurses' association has a charity organization department. In Cleveland a notable federation for philanthropy has been created under the auspices of the Chamber of Commerce, which has combined the budgets of all the institutions, societies, and associations for charity, etc., that are approved in the city; the plan is to facilitate work and decrease administrative expense. In Ohio a number of temporary organizations were effected in the flooded districts, some of which will become

permanent. When the flood distress came the need of systematic organizations of the kind was very strikingly shown.

The Red Cross.—The organization of the American Red Cross has proved its efficiency during the year. The tornado at Omaha had scarcely died down before one of the institutional members of the Red Cross from Chicago was on his way to the city. The director of the Red Cross had reached Chicago from Washington when the news of the Ohio floods turned him back to that state. The work of rescue and relief was done throughout the flooded territory, under competent trained directors, with an efficiency and promptness inconceivable in the old days of confusion and suffering that formerly marked the attempt to relieve such disasters on a large scale. (See also XXIII, *Engineering;* and XXX, *Public Health.*)

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XIX. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

AGRICULTURE

E. W. Allen

Retirement of Secretary Wilson.—James Wilson, Secretary of Agriculture since 1887, a period of 16 years, retired March 4, 1913. Few men have rendered such notable service to this basic industry. His work was constructive and was based on an intimate knowledge of the conditions and needs of American agriculture, thorough sympathy with the American farmer, and a large measure of confidence in the ability of science and experimentation to aid in promoting agriculture in all regions and make it more intelligent and sure. In a remarkable degree he enjoyed the confidence of the people and of Congress, and this enabled him to secure means for developing the Department and making its work effective. In his time the Department grew from a force of less than 2,500 persons to nearly 14,000, from an appropriation of less than $3,000,000 to nearly $18,000,000, and became the greatest agricultural institution in the world.

Department of Agriculture.—The change of administration brought several changes in the Department of Agriculture, although the personnel of its working force was not affected. David F. Houston, President of Washington University in St. Louis and former President of the Texas Agricultural and Mechanical College, became Secretary of Agriculture, and Willet M. Hays, Assistant Secretary since 1905, was succeeded by Beverly T. Galloway, a member of the Department force for over 25 years, and Chief of the Bureau of Plant Industry since its organization in 1900. Dr. Galloway was succeeded by William A. Taylor as Chief of the Bureau of Plant Industry, and Charles F. Marvin succeeded Willis L. Moore as Chief of the Weather Bureau on the latter's removal (see V, *National Administration*). L. M. Estabrook was appointed Chief of the Bureau of Statistics, succeeding Victor H. Olmsted.

One of the most radical changes under the new administration relates to the system of publications. The Department's publications are said to represent in the aggregate the most voluminous body of literature currently published by any scientific institution in the world. The activities in this direction have, however, reached the limit of the funds available, and hence the system has been revised with a view to economy and to better adapting the publications to the needs of special classes of readers and definite sections of the country. In place of the independent series of bulletins and circulars issued by each of the bureaus, a single departmental series has been established. The bulletins will be semi-technical, and will be supplemented by the more popular *Farmers' Bulletin*, which will be reduced in size and will deal particularly with conditions in restricted sections. An agency has been provided for promptly disseminating information through the press and otherwise. The annual reports of the Department will be considerably abbreviated, and changes will be made in the character of the articles comprising the *Yearbook*. The more technical bulletins have been superseded by a *Journal of Agricultural Research*, a new organ for recording the scientific activities of the Department in form suited to those interested in the more strictly tech-

nical aspects of agricultural investigation.

In the crop-reporting service of the Bureau of Statistics a number of plans have been developed to make the information gathered more effective and to place it speedily in the hands of the farmers. The monthly *Crop Reporter* has been superseded by the *Agricultural Outlook*, to be issued once a month during the crop-reporting period, and a weekly news letter to crop correspondents. The *Outlook* will contain a summary of crop conditions throughout the country, together with a summary of the weather conditions and articles on the condition of special crops and industries, and other timely topics. Special arrangements will be made to issue and distribute it promptly. A plan has been put into effect for giving farmers immediate news of the crop conditions by telegraphing the crop news for each state to a Weather Bureau office at a central point, from which the information will be distributed to every newspaper in the state within a few hours. A new Rural Organization Service, with an Office of Markets, has been established (see these titles, *infra*).

The Agricultural Appropriation Act for the year 1913-14 enlarged the powers and duties of the Department in a number of respects, and carried the largest appropriation ever granted it, $17,986,945, an increase of $1,335,449 over the previous year. Some of the more important new features were the authorization of a commission to investigate the subject of rural credit abroad (see *Rural Credits, infra*), a Federal law for the protection of migratory game and insectivorous birds (see *Conservation of Wild Life, infra*), and provision for the inspection of serum, virus, toxins, and analogous products for the treatment of domestic animals (see *Diseases of Live Stock, infra*). A special appropriation was made to test the feasibility of eradicating hog cholera from a circumscribed area. The amount for the eradication of the cattle tick in the South was increased to $325,000, that for combating the gipsy and brown-tail moths in New England to $300,000, and the funds for farm management and demonstration work were increased to a total of $750,000. The Forest Service led all other bureaus with a total appropriation of $5,399,679, largely for administering the national forests, followed by $2,667,995 for the Bureau of Plant Industry, $2,031,196 for the Bureau of Animal Industry, $1,901,260 for the Office of Experiment Stations, including the allotments to the state stations, $1,707,610 for the Weather Bureau, and $1,058,140 and $742,210 for the Bureaus of Chemistry and Entomology.

The Crop Year.—Not since the great drought of 1901 has the crop damage in the western corn belt been so serious as during the past season. Hot weather set in the middle of June and continued through the summer, with very deficient rainfall. Extra cultivation did much to save the corn in the central corn belt, the season teaching an effective lesson in this respect which has been preached for years, but slowly practiced. Spring grains were badly injured in many sections. The range dried up and feed, as well as water for stock, became scarce. In some sections of the West the unusual spectacle was presented of farmers who had feed, trading it for water for stock, head for head. Live stock of all kinds, including breeding stock and calves, was rushed to the stock yards, Kansas City receiving the largest shipments on record. The effect of this extensive selling will have a serious effect on the future live stock interests of the sections concerned.

The generous rains which came in the drought-stricken portion of the corn belt were too late to materially affect this year's crops. In October the estimated yield of corn was 22.2 bu. an acre, as compared with a yield of 29.2 bu. in 1912 and a five-year average of 26.5 bu. This indicates a total production, on the estimated area of 106,884,000 acres, of approximately 2,373,000,000 bu., the lowest since 1903. On the other hand, the winter wheat crop was the largest of record, and spring wheat, while greatly injured by drought in some sections, was a fair crop. The total production of wheat is placed at 753,233,000 bu., the largest ever grown in the United States.

The area in oats was the largest ever grown in the United States, but

the crop of 1,122,139,000 bu. was below the record crop of 1912, although the third largest in our history. The yield of barley per acre was much below that of 1912, and the total crop of 173,301,000 bu. was about 50 million bushels less than in 1912, the record year. The rye crop is estimated at 34,789,000 bu., nearly equal to that of 1912. The condition of the cotton crop on Sept. 25 was only 64 per cent. of normal, the lowest at that date, with one exception, in 10 years. Drought was disastrous during the summer, and the subsequent rains came too late in many sections to be of much benefit to the crop. All surplus potato states, except Maine and Colorado, indicate a materially smaller production than last year, pointing to a decrease of about 25 per cent. The final estimate of the Department of Agriculture, given in tabular form on page 501, showed a more favorable condition than the October estimate, but did not alter the record of decreases in all the principal crops except wheat. (See also XIII, *Economic Conditions.*)

Experiment Stations. — The year was one of an unusual number of changes in the personnel of the experiment stations. This is still one of the hindrances to be contended with, due to the excessive demand for well-trained men, resulting from the steady development of these institutions, and the higher standards of work. The directors of no less than 13 of the stations changed, and in 27 states, or fully half, there were important changes in the members of the staff. These members now aggregate about 1,600, an increasing number of whom give their attention in large measure or exclusively to the station work.

Dr. S. M. Babcock, agricultural chemist in the Wisconsin University and Station since 1888 and widely known for his development of the Babcock milk test and for a long list of important agricultural investigations, retired at the close of the college year at the age of 70, under the conditions of the Carnegie Foundation. He had been connected with experiment station work since 1882, when he became the first chemist in the newly established state station at Geneva, N. Y.

The stations in a number of the states were greatly strengthened during the year, and in general they shared the prosperity of the agricultural colleges with which they are connected. They had available for their work a total of over $4,000,000, of which $1,545,000 came from the Federal Government and the remainder from state appropriations, fees, contributions, and sales. Of the total revenue, over a million dollars was expended for buildings and another half million for permanent equipment.

The largest development occurred in California, where the station work was reorganized, along with that of the College of Agriculture, and received a greatly increased appropriation from the state. The appropriation for the biennium was $700,000 for all branches of the agricultural work of the state university, including the experiment station and extension work, and in addition $60,000 for the purchase of land for a citrus substation in southern California, $100,000 for a laboratory building, and $25,000 for a residence and barns for the substation. It is planned to develop in southern California a high-grade station for research and experiment upon all phases of citriculture.

The Arizona legislature showed its appreciation of the experiment station by an appropriation of $87,800 for the biennium, including $30,000 for a new station farm in the Salt River Valley, $18,000 for dry farming, $10,000 for date palm experiments, and $4,500 for publications. In addition, $165,000 was provided for an agricultural building at the state university, in which the station will share. Iowa gave a large increase for the College of Agriculture, in addition to $40,000 for the station, $10,000 for veterinary investigation, $17,000 for the purchase of an experimental farm, and $40,000 for agricultural extension. The Kansas station received for the biennium $55,000 for maintenance, with $15,000 for the production and dissemination of improved seeds; and, in addition, $102,500 for six branch stations, two of which are new and located in the dry section of western Kansas. The legislature also provided for a state board of irrigation, on which the station is represented,

with an appropriation of $125,000 to be used in installing pumping plants for irrigation under prescribed conditions, and for experimenting with pumping machinery, irrigation methods, and crops suitable for irrigation farming. A new stallion registration law was enacted, requiring the registration of all stallions offered for public service.

The Missouri station received $30,000 for maintenance, $50,000 for hog cholera serum work, $20,000 for soil test fields, $12,000 for a soil survey, $25,000 for county farm advisors, $2,500 for orchard demonstration, $10,000 for agricultural laboratories, $12,000 for animal husbandry, $5,000 for dairying, and other items. In Ohio the aggregate annual appropriation for the station was $229,200, divided among the various departments and including $37,500 for cooperative work and $20,200 for additional buildings and equipment. These appropriations indicate the generous manner in which the stations are being supported and the variety of features for which specific provision is made.

In Connecticut the two experiment stations were combined under one director, the stations retaining, however, their independent organization and funds. In New Jersey provision was made for the inspection of lime designed for agricultural purposes, and at the Minnesota station a seed testing laboratory was opened under the provisions of a newly enacted seed labeling law. The Maine legislature provided for a station farm in Aroostook County, to be used for plant breeding and other investigations. In Washington a state Department of Agriculture was established, with a commissioner who will take over the duties now divided among a large number of officials, including the inspection of fertilizers and feeding stuffs, formerly in the hands of the station, and the administration of the stallion registration law. The new poultry building at Cornell University, completed during the year, is an interesting addition to the list of special buildings for agricultural work.

There has been a further differentiation of the work of experimentation and investigation from that of extension enterprises. Heretofore the station has done a good deal of work of that character, but the demands of the public for advice and for assistance along many lines which reach over into the field of instruction long ago outgrew the stations; and at the same time the necessity for differentiating their work from that of the extension work has become clear. In a number of states the appropriations for extension work are still largely made to the station, but the service has generally been organized so that station workers are now much more largely at liberty to confine their efforts to genuine experimental work.

New Jersey has provided for a state superintendent of farm demonstration work and of county superintendents; and the state of Washington has established a Bureau of Farm Development, with the director of the experiment station at its head and the boards of county commissioners as its other members. On application of any county an agricultural expert is to be assigned to it. Oregon has granted $25,000 annually for agricultural extension and demonstration work, with provision for farm demonstrations aided by the counties.

Increasing Productive Efficiency.—Attention is being sharply called to the fact that the greater part of the farming of the United States is still at a low level of efficiency. This is clearly shown by the low averages throughout the country for the staple crops. Increased production must be sought in a more effective use of the land and of the labor put upon it, and this, it is contended, coupled with more direct selling and economical distribution, is in large measure the solution of the high cost of living.

This has brought the condition of our agriculture into a foremost position among the questions of the day. Commenting upon it, Sir Horace Plunkett declares that "the farm lands of the United States are not producing anything like the amount of food which the rapidly increasing population of the country demands. The best experts are unanimous that the yield per acre might be enormously increased without any serious difficulty." He maintains that, in spite of all advantages, the farmer is not rising to

his opportunities, and that "had prices remained stationary during the last ten years, the farmers would have been bankrupt." "Brain farming" is needed in a much larger degree to prevent loss of fertility and develop a higher type of farming, secure a more reasonable return from the land, and thus cheapen production. The high price which good agricultural lands have attained also makes this the more necessary.

The last census showed that in 10 years the value per acre of farm lands in the United States had increased 108 per cent. While the increase was general the country over, the largest gain was in the West, *i. e.*, in the formerly cheap lands from which the staple farm crops are so largely derived. In the Middle Atlantic and North-Central states the increase ran up to 100 per cent., while for the groups of states west of the Mississippi it ranged from 146 per cent. for the Pacific to 222 per cent. for the mountain states, nine states showing an increased value per acre of between 200 and 300 per cent., and one state 476 per cent. This increase in land values has continued in the years since the last census.

To aid in bringing about a higher efficiency, the national Department of Agriculture, the state agricultural colleges and experiment stations, and associations of bankers, manufacturers, and other organizations are laboring diligently and with much result; and a bill to provide the states with funds for agricultural extension, to enable them to demonstrate methods for improvement in the selection of seed and for handling the soil and crops, has been favorably reported in Congress. The General Education Board, continuing its support of agricultural extension, has appropriated $180,000 for agricultural demonstration work in the southern states. $75,000 for girls' canning and poultry clubs in the South, $14,500 for demonstration work in Maine, and $7,500 for beginning similar work in New Hampshire. A number of private corporations and business organizations have donated sums up to a million dollars for establishing farm bureaus and county agents to teach better farming. Lack of a common plan and union, however, threatens to weaken these independent efforts.

The Department of Agriculture has been collecting data on a normal day's work for various farm operations, and has compiled the results in a bulletin which is designed to represent what the average farmer ought to expect of his workers, and thus to assist in mapping out a programme.

Coöperation and Organization.—The two main pillars on which rest the efforts for the promotion of agriculture and of the condition of the people engaged in it are science, to make production wiser and more fruitful, and economics, properly to place the farmer so he will share more generously in the profits of trade and finance. The development of this latter phase has only recently begun to receive any considerable nation-wide attention. In the past year much has been written on the subject and it has been one of the leading topics in the field of agriculture. It is pointed out that, in spite of all the progress that has been made in crop improvement and in spite of all the discussion of better farm conditions, as yet there is in this country no large rural district well organized in all its social and business aspects. The great mass of people in the country are as yet unorganized. The farmer must still do things too largely on an individual basis, whereas everything in the town is organized, correlated, conducted on a community and not on an individual basis.

A great impetus was given to the subject of coöperation by the publicity attending the sending of an American commission abroad the past summer to study coöperation and rural credit. Two important conferences were held in the spring of 1913 to consider cooperation, the first National Conference on Marketing and Farm Credits at Chicago, and a Farmers' Conference at Richmond, Va., under the auspices of the sixteenth Conference for Education in the South.

The new Secretary of Agriculture has taken up the subject of organization as a large piece of constructive work offering a special opportunity. With the aid of the General Education Board, which in the past has interested itself in the promotion of

agriculture in the southern states, he has established in the Department of Agriculture a Rural Organization Service, with Thomas N. Carver, professor of economics in Harvard University, at its head. Congressional authority for the new undertaking is found in an appropriation "to acquire and to diffuse among the people of the United States useful information on subjects connected with the marketing and distribution of farm products." The establishment of a bureau to cover the organization of rural life is a significant departure, as heretofore the effort has been directed primarily towards the problems of production. But as agricultural science progresses and its methods come into operation, it becomes more and more evident that the business of food production must be organized and conducted around larger units than that of the single farmer and his family.

Coöperation is opposed to individualism, and although the change is slow, extreme individualism on the farm is passing. Dr. Carver lays it down as a natural law that those who cannot or will not work together are the natural prey of those who can. Farmers are so numerous and so widely scattered, and they are so much more expert in dealing with the forces of nature than with the forces of society, that it is physically more difficult for them to work together than for other classes.

One very important result of cooperation has been the influence upon the farmer as a man and a citizen, the development of community consciousness, and the attitude towards rural institutions. The Department has set about finding out what sort of organizations exist and are working effectively in various parts of the country, ascertaining just how they are working and their effect on rural communities. On the basis of such information plans will be worked out along simple lines and attempts made to stimulate and encourage the formation of active coöperative organizations through propaganda work, and to emphasize their value through demonstrations in different sections of the country. By coördinating the existing and the new organizations, and by propaganda work, it is hoped to set up a great movement towards a more general organization of country life throughout the United States. The fact that in this country leadership has not been taken by any one person or body, as it has in other countries, explains the lack of any widespread coöperative movement, but the existence rather of many independent and unrelated efforts. Wise leadership and stimulation are greatly needed in connection with this subject.

As a first step in its effort the Department of Agriculture has organized an Office of Markets, the purposes of which are to investigate present systems of marketing and distribution of farm products, to aid in devising and maintaining economic and efficient systems of storage, transportation, marketing, and utilization, and to assist in the organization and extension of coöperative production, marketing, and distribution. Widespread interest is evidenced in this new undertaking, and it is recognized as offering great opportunities for working out more economic methods, the establishment of market grades and standards, the location of demand for and supply of farm products, and other matters connected with the delivery of farm produce by the producer to the consumer with a minimum waste and at a minimum expense. As a working basis for certain phases of this work, the Department issued early in the year a report on "Systems of Marketing Farm Products at Trade Centers."

A number of states have taken up the matter of coöperation and of marketing, and in this connection regulation of the middleman and commission merchants has received consideration, and in some cases, *e. g.*, New York, has been the subject of legislation. In Kansas and Missouri the agricultural colleges established exchanges to help farmers in selling farm products, beginning with apples. Their efforts were popular and successful. Instances of successful local coöperative undertakings are rapidly multiplying as the farmers learn the methods of operation and catch the spirit of the undertaking. In the Northwest an organization known as the Right Rela-

tionship League is promoting and supervising coöperative stores, of which the members are very largely farmers (*A. Y. B.*, 1912, p. 385). As the basis of true coöperation is brotherhood, and as this is an essential part of religious work, it is urged that the rural church might serve as a leader in coöperative buying, selling, and other united efforts.

Wide-awake farmers near large centers are already availing themselves of the parcel post as a means of direct marketing, supplying people in the cities with chickens, eggs, berries, and vegetables at prices which are an advantage to both the producer and the consumer, and result in the products being received in a much more fresh condition. The increase in the weight limit within the first and second zones from 11 to 20 lbs. is multiplying this opportunity. It is now possible to supply customers with an assortment of products sufficient to last for several days, by shipment in hampers up to 20 lbs., which may be sent as far as 150 miles for only 24 cents. The development of this system offers large opportunities for direct coöperation and dealing between the producer and consumer.

The effects of the thoroughly organized condition of the cotton market and the one-sided cropping system was brought out in a sensational exhibit showing the importation of other agricultural products into one of the large cotton states. It was shown that while the cotton crop of the state had a value of $135,000,000, other farm products grown elsewhere were brought into the state to the value of more than $172,000,000. The correctness of the figures has been called in question, but it is admitted that they emphasize a serious economic situation which rests in part upon the fact that the market for the staple crop is thoroughly organized, whereas that for hay, corn, dairy products, beef, etc., is not, and the avenues for selling these commodities are uncertain.

Rural Credit.—This subject has rapidly come into prominence, and many data have been collected to show its importance to healthy agricultural development. Data collected by the Department of Agriculture early in the year showed the predominating rate of interest on farm loans to be 6 per cent. in New England and the central states, increasing to from 8 to 12 per cent. in the South and Southwest, while in the western states it ranges all the way from 7½ to 15 per cent. and over. The average rate for one state (Oklahoma) was 11.58 per cent., the range being from 8 to 20 per cent. (See also *Rural Credits, infra.*)

Country Life.—Closely related to rural coöperation and credit is the broader movement affecting all phases of country life, for the economic development in farming communities is closely bound up with the social development and general welfare of the community. Various state as well as national organizations are giving active attention to the working out of effective methods for community development. In several of the most effective county surveys the country church has frequently been found to serve as a center around which to map out a community as a basis for organized effort.

Such books as *The Challenge of the Country*, by G. W. Fiske (New York, 1912), *The Evolution of the Country Community*, by W. H. Wilson (Boston, New York, and Chicago, 1912), *Country Life and the Country School*, by Mabel Carney (Chicago, 1912), and *The Country Church and Community Coöperation*, edited by H. Israel (New York and London, 1913), are indicative of a rapidly growing literature on this broad subject, embodying the results of a new line of study and a new viewpoint.

The New England Conference on Rural Progress held its seventh annual gathering in Boston in March, with an attendance of about 250 persons, mostly delegates from the various New England organizations. One achievement of this conference has been the recognition that New England constitutes an economic unit, which has led to considerable unity of action along agricultural lines. A series of lectures on country life subjects was given at the University of Wisconsin during the winter of 1912-13. Other institutions gave prominence to the subject; the third session of the School for Leadership in Country Life was held at Cornell University during

the summer, and a three-year graded course has been established there.

A national organization, known as the Collegiate Country Life Club for Rural Leadership, has been effected, as an outgrowth of the work started by the Y. M. C. A., in directing the attention of college men to the problems of rural life. The purpose of the organization is to win college men and women to the farm, to interest them in the life it affords, the conditions of living, and also the possibilities of leadership in rural affairs, and enlist coöperation with existing rural organizations. A three days' conference of the National Forward to the Land League was held in Boston during the summer. The Secretary of the Massachusetts State Board of Agriculture stated that in that state alone there are more than 5,000,000 acres of waste land which could be profitably used for agricultural purposes. Last year the state appropriated $15,000 for the purchase and development of farm land. The land was purchased for $15 an acre and when fully developed should be worth $150.

A significant gathering was the Interstate Agricultural and Industrial Congress at St. Joseph, Mo., in March, which brought together several thousand farmers from the surrounding states at the invitation of the Commercial Club, to listen to discussions on soil renewal and management, diversification of crops, farm credit, cooperative marketing, and other topics vital to the regeneration of country life. Here, as in many other recent instances, the town and country united to further agricultural advancement.

Farmers' Mortgaged Indebtedness.—Statistics in relation to farm mortgages, issued by the U. S. Census Bureau, show that in the United States as a whole the number of farms mortgaged has increased in the last two decades more rapidly than the number of farms free from mortgage, the proportion mortgaged being 28.2 per cent. in 1890, 31.1 per cent. in 1900, and 33.6 per cent. in 1910. The proportion of mortgaged farms increased from 1900 to 1910 in every geographic division, except the Middle-Atlantic, the most conspicuous increase being in the three southern divisions. This is attributed to increased confidence of lenders in the titles of land and the ability of farmers to pay. For the something over a million farms for which statistics were gathered, the amount of debt averaged 27.3 per cent. of their value. Although the average amount of indebtedness per farm showed an increase, it is noteworthy that the average owner's equity per farm more than doubled.

The Meat Supply.—The decrease in the production of meat in the United States has occasioned considerable concern and aroused much speculation as to the future supply and prices. In the last six years the number of beef cattle in the country has apparently fallen off over 30 per cent. It is estimated that since 1910 there has been a decline of nearly a million and a half in the number of cattle slaughtered, or approximately 780,000,000 lbs. of beef. The high price of meat is already reflected in a decreased per capita consumption of 10 lbs. in the past four years, or from 162 lbs. in 1909 to 152 lbs. in 1913. The rapid settlement of the grazing ranges of the West, the division of natural pastures into cultivated farms, and the rise in value of farm land, have been coupled with the increase in price of corn, which has acted as a deterrent to feeding cattle for beef on the small farms.

The country no longer has a surplus of beef for export, and the only considerable items of meat now shipped to foreign markets are prepared pork products, such as bacon, hams, and lard. These serve to maintain the position of the United States as the largest meat exporter of the world. Although the exports fell from a value of $250,000,000 in 1906 to $150,000,000 in the fiscal year 1913, the amount exported by the United States exceeded the aggregate of its five principal rivals, Argentina, Australia, New Zealand, Canada, and Uruguay. The United States furnishes about one-third of the total meat entering into international commerce.

Up to the present year our imports have been negligible. In 1913 the imports of cattle during the first eight months amounted to $5,031,842, as compared with $181,145 for the same period of 1904. In July, 1913, 642,394

lbs. of beef were imported, valued at $56,993; in August, 1,151,726 lbs., valued at $89,204; and in September an approximately equal amount. Importations have been made from Argentina and Australia, but a study of the statistical situation does not disclose where this country is likely to obtain any large quantity of beef for any extended period.

Despite the reduction in live stock in recent years, the United States still has a larger number of food animals than any other country in the world. Recently thousands of cattle have been brought in from Canada, mainly because of poor pasturage and partial failure of the hay crop there, but this movement will have the effect of further reducing Canada's stock of cattle, which has shown a steady decrease, amounting to over 11,000 in the past five years, and is only about one-ninth that of the United States. Argentina and Australia are already supplying most of the British imports, but the Australian colonies are sheep rather than cattle countries, and Argentina has apparently about reached the limit of its present cattle resources. Its last census showed a decrease in the number of cattle. The United States will be obliged to bid against England and other foreign purchasers of beef, which will tend to keep up prices. It is to be noted also that the foreign beef is not up to the standard in quality of our corn-fed beef.

In view of the change of the United States from a beef-exporting to a beef-importing country, the Department of Agriculture during the year sent inspectors to study the meat conditions in South America and Australia. The object was to secure first-hand information as to the efficiency of the inspection practiced in those countries, with a view to excluding from the United States meats produced from diseased cattle or slaughtered in unsanitary establishments, or improperly refrigerated, packed, or shipped.

The Department is using every effort to increase the domestic production of meat of various kinds. It is believed that the farms of this country have almost unlimited possibilities for live stock production, and that large areas not generally profitable for cultivation might be used for that purpose. The greatly increased price of young cattle is favorable to this, and it is contended that cheap pasturage and economic feeds can be provided. At present, however, the important consideration is a good market for animals in small numbers. The central market, which suits the rancher and feeder, does not suit the farmer, with whom beef production is a side line rather than a main issue, and who therefore needs a local market.

The present deficiencies are due largely to important changes in our system of cattle raising, and several preliminary adjustments of farm economy are necessary before the production of meat animals can be made a source of positive profit in the more settled regions. The large packing establishments have monopolized and centralized the business of slaughtering cattle, so that there is little competition in buying the farmer's stock, and small shipments are at a special disadvantage. These packers are now concerned for the future supply of beef for their abattoirs. The American Meat Producers' Association at a meeting in September voted a half-million dollars to be used to encourage cattle production, by ways and means to be devised later. It urged that there should be more legislation to prevent losses of live stock by diseases, and that the meat inspection regulations should be revised to prevent the loss of meat at abattoirs by the enforcement of unduly severe inspection rules. (See also *Live Stock, infra.*)

Silo Building.—The silo has long been a recognized part of the farm equipment in the eastern and central states, but in the past few years has spread rapidly in the West. In the drier regions where the uncertainties of the climate, and especially lack of timely rains, makes maturity of crops doubtful, it has provided a means of saving feed which would otherwise be lost. Saccharin and non-saccharin sorghums and even Indian corn can be grown with a view to ensiling if they do not mature. The silo is thus an insurance against an unfavorable season in these regions, and enables a relatively large amount of feed to be produced on a given tract. In the dry-farming regions the silo is rap-

idly coming into use, and coupled with dairying on a small scale is recognized as one of the most promising and sure means of winning a living on these lands.

There has been unusual activity in this direction in the past year, and farmers are being instructed and aided financially in providing this new means of storing crops. In some sections of the dry region farmers are excavating silos in the ground, lined with cement, which they are able to construct themselves at small expense. These are proving satisfactory and save the expense of an elevator or blower in filling, although the silage must be lifted out. So great is the interest in silo building that several of the states, notably Nebraska and Oklahoma, have had under consideration provisions to enable the state to loan money to farmers for that purpose.

Camphor Growing in Florida.—An interesting experiment in the establishment of a new industry on a commercial scale is the attempt of a private firm in camphor growing on a plantation of about 900 acres in Florida. The trees have been grown as hedge rows and gave their first crop this year. The rows are wide enough apart to allow a traction engine to run between, with which the limbs are sheared off diagonally and then conveyed to the mill, where they are crushed or ground, and the camphor and other products distilled off by live steam. These products are then separated by fractional distillation. The result is said to have been such as to indicate a commercial success.

DAIRYING

E. W. Morse

The Price of Milk.—Investigations by the Department of Agriculture shows that the average price paid farmers for the milk delivered to 26 of the leading cities of the United States was 3.565 cents per quart, ranging from 2.904 cents, the price paid in St. Paul, Minn., to 4.437 cents, paid in Washington, D. C. Although these prices are somewhat higher than five or six years ago, the increase in the price paid the producer has not kept pace with the increase in price of feed stuffs and farm labor, the two items which make up about 80 per cent. of the cost of production. More stringent regulations governing the production of milk have also added considerably to the cost, but milk still remains an economical food as compared with many other staple food products. The price of milk to the consumer has advanced less rapidly in the past 20 years than has the price of the four great food staples, eggs, wheat flour, round steak and bacon.

Medical Milk Commissions.—The movement for the production of "certified milk" dates from 1889, and has done much to improve the quality of market milk. There are now 65 commissions organized to establish correct clinical standards of purity for cow's milk and to provide for milk inspection. The milk produced under their supervision is known as "certified milk," and amounts to about one-half of one per cent. of the local milk supply of the country. The price to the consumer varies in different cities from 10 to 20 cents per quart, being on the average about 6.4 cents per quart more than ordinary market milk. This high price prevents the use of certified milk in large quantities by poor people, yet there would be a greater demand for it if consumers were taught to appreciate the extra value of milk produced under sanitary conditions. Unfortunately, there are a few dairymen who sell their product under the name of certified milk, but who have no connection with the commissions. The state of New York has passed a law for regulating the sale of certified milk.

Cow Testing Associations. — The first cow testing association in the United States was formed in 1905. On July 1, 1913, there were 120 of these associations, 60 of which were formed during the fiscal year just ended. These associations tested over 2,500 herds containing 47,150 cows. Besides these associations there are others which have been formed in connection with agricultural high schools, where no charge is made for testing. Although the value of these associations has been demonstrated in 25 states, the United States is still be-

hind the leading dairy countries of Europe in this work.

Storage Butter.—According to the figures of the Bureau of Statistics, Department of Agriculture, 157,000,000 lbs. of butter are stored every year at a cost of about .571 cent per pound per month. This butter, which is kept in storage about 4.43 months on the average, was found to equalize prices and was an advantage to consumers by providing a commodity out of the natural production season.

The Dairy Division of the Department of Agriculture has made several reports of extensive investigations on the effect of storing butter at various temperatures, the keeping quality as affected by different methods of manufacture, and the cause of the metallic or fishy flavor of storage butter.

Dairy Legislation.—The state legislatures enacted more than the usual amount of legislation in regard to the production, sale, distribution and adulteration of milk and its products. Minnesota led all other states in this respect, as laws were passed prohibiting the use of neutralizers or preservatives, such as viscogen, lime and borax in milk or its products; prohibiting manufacture and sale of oleo in semblance of natural butter; defining the acid limit of cream; preventing unjust discrimination in the sale of milk; regulating the branding of butter and cheese; prohibiting the operation of unclean creameries; and restricting shipments of cream in common containers to 65 miles. This last law was tested by the state courts and found to be unconstitutional.

Conflicting opinions have been rendered during the year by two Federal courts on the right of the Secretary of Agriculture or the Secretary of the Treasury to fix a legal standard of 16 per cent. water in butter; the question is to be submitted to the Supreme Court for final settlement.

A decision of the Court of Appeals of the District of Columbia placed milk under the Pure Food and Drugs Act, which is administered by the Department of Agriculture.

The Underwood Tariff Act placed fresh milk and cream and preserved or condensed milk on the free list. The tariff on butter and its substitutes was reduced from six cents to three cents per pound and cheese from 32 per cent. to 20 ad valorem.

Dairying in Foreign Countries.—Dairying is increasing in importance in Argentina. One concern in Buenos Ayres makes 2,000,000 lbs. of butter per year, one-fourth of which is sent to London. For the first time in her history Argentina sent butter to the United States. Siberia has also sent a few small shipments of butter to this country. There was a decrease of exports of butter from Canada, Australia, and New Zealand to Great Britain. This deficiency was supplied largely from Denmark, Russia and France. The United States exported practically nothing. As compared with the previous year, England imported more cheese from New Zealand and less from Canada. Early in the year Australia adopted new standards for the quality of export butter.

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LIVE STOCK

E. W. MORSE

Domestic Beef Supply.—As in 1912, there was a shortage in all kinds of meat animals. The severe drought in the Southwest materially reduced the yield of corn and also the supply of grass-fed beef. The high price of corn sent many animals to the block in an unfinished condition. A high level of prices of cattle on the hoof prevailed, with a wide spread between common and finished steers.

The loss of cattle from exposure and disease, though amounting to nearly two million in numbers, was much less than in 1912. The receipts of cattle at six of the principal live stock markets for the first nine months of 1913 was very slightly in excess of the receipts for the same period of 1912, but a decrease of nearly 10 per cent. as compared with 1911. The exports of live cattle for the fiscal year 1913 amounted to only 24,714, a decline from about 600,000 since 1905. The meat products formerly exported included immense quantities of beef, but are now confined chiefly to bacon, hams, and lard.

New Sources of Meat.—Continued high prices for mutton, pork, and pork products, as well as for beef, have caused so serious a situation that numerous projects are under way for encouraging home production and for importing from other countries. The dwindling live stock traffic has caused the railroads to restore the feeding-in-transit privilege of former days, so that cattle and sheep can arrive at market in better condition and prevent an unnecessary waste. The efforts in the coöperative shipping of live stock in Minnesota inaugurated several years ago have been so successful that the movement has spread to other states. One association claims to have made a saving of $8,000 to its members in one year. Until the present year our meat imports have been so negligible that they were not listed separately in the commerce returns, although for some years many feeding and stock cattle have been received from Canada and Mexico. For the first time shipments of fresh beef were made from Australia to San Francisco and from Argentina to North Atlantic ports. It is announced that regular lines of refrigerator ships will be organized to take care of this traffic in the future.

It has taken nearly all the surplus meat of the southern hemisphere to supply English and Continental markets with meat formerly furnished by the United States. Large shipments of cattle on the hoof came from Canada immediately after the Underwood Tariff Act went into effect in October, but this will still further reduce this source of supply. The experts in the Department of Agriculture declare that our home supply of meat can be greatly increased by a better use of our pastures and waste lands (Farmers' Bull. 560). In October the Department of Agriculture issued regulations governing the inspection of imported meat and meat products. They provide for ante-mortem and post-mortem inspection in the countries where slaughtered, as well as inspection at ports of entry. After entry foreign meats are placed on the same basis as domestic meats. The new tariff placed fresh meat, bacon, ham, raw wool, and eggs on the free list, and reduced the tariff on live animals from 20 to 10 per cent. ad valorem. (See also *Agriculture, supra.*)

Pure-Bred Stock.—The Department of Agriculture has provided means for protecting buyers of pure-bred animals from deception when purchasing imported stock. Every imported animal whose pedigree has been verified must bear the red stamp of the Bureau of Animal Industry on the pedigree certificate. The embargo which had existed since June 25, 1912, on live stock from the British Islands to the United States, because of foot-and-mouth disease, was removed early in the year, and was followed by a considerable shipment of pure-bred animals. The new regulations concerning the importation of horses provide for an official statement certifying that no case of dourine, glander, farcy, epizoötic

lymphangitis or mange has occurred in the localities where the horses have been for the last 12 months. During the year the first volume of the *Arabian National Stud Book* was issued. The National Horse Breeding Association was also formed in order to develop a strain of American horses, Arabian stallions being selected for foundation stock, and these to be mated with the best types now in the United States.

Sheep.—The winter of 1912-13 was a good one for the western sheep feeders; approximately one and one-half millions of sheep were fattened in Colorado, the Arkansas Valley and the North Platte region alone. Because of the shortage of beef and pork, good prices were obtained in the spring in spite of the large number marketed, and unusually high prices prevailed in August, followed by a heavy run of sheep at Chicago and Omaha in the fall. Though the consumption of lamb is increasing, there is less and less demand for heavy mutton. This causes a tendency to put the industry on a lamb and ewe basis. There is also a tendency in the trans-Missouri region for feeders to make beef rather than either lamb or mutton. The new tariff law will naturally turn breeders from fine wool to the mutton breeds.

Live Stock Abroad.—The official statistics of Canada show that on July 1, as compared with the previous year, there were moderate increases in the number of horses, milch cows, sheep, and beef cattle, and a slight decrease in pigs.

There is at present great activity in nearly all branches of the live stock industry in Argentina. Though large areas have recently come under the plow, much of this land will eventually be sowed to alfalfa, which means more cattle. The sheep industry is expanding rapidly in what was formerly Patagonia and in the central plateaus of Brazil.

In Great Britain the decline in imports of live animals has been balanced to a large extent by an increase of dressed meat imports. The decrease in supplies from the United States has been met by increases from Argentina, Australia, and New Zealand. In order to promote the live stock industry at home, the Board of Agriculture of Great Britain has undertaken to assist farmers by purchasing high class bulls, stallions, and boars, charging farmers the same low fees as are usually paid for the use of sires of inferior types. The Board will also assist in the keeping of milk records.

The latest census reports from Germany show considerable decreases in cattle, swine, sheep, and goats since 1907, and a slight decrease in other kinds of stock. In Hungary there is a high percentage of increase in numbers of swine, but a decrease in other domestic animals, the largest decrease being that of sheep.

The wool clip in Australia amounted to 1,804,801 bales, which was considerably less than in 1912, due to drought and a heavy mortality among the sheep. The Australian Commonwealth is arranging to take charge of the slaughtering, freezing, and sale of meats in order to prevent the possibility of the meat trust's controlling prices.

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DISEASES OF LIVE STOCK

W. A. Hooker

American Veterinary Medical Association.—The semicentennial of the American Veterinary Medical Asso-

ciation, held in New York City from Sept. 1 to 5, in which city it was organized 50 years ago, marks an important epoch in the history of veterinary medicine. The more notable advances made were referred to by Dr. J. R. Mohler in his presidential address. The officers elected for the ensuing year are: president, Dr. C. J. Marshall of Philadelphia; secretary, Dr. N. S. Mayo of Chicago; treasurer, Dr. G. R. White of Nashville. The Association of Veterinary Faculties and Examining Boards of North America also held sessions during the convention. In Canada Dr. Fred Torrance was appointed veterinary director-general to the Government; *vice* Dr. J. G. Rutherford resigned.

Federal Regulation of Biologic Products.—An Act of Congress approved March 4 authorized the Secretary of Agriculture to promulgate regulations governing the preparation, sale, barter, exchange, shipment, and importation of viruses, serums, toxins, and analogous products intended for use in the treatment of domestic animals, and such regulations were drawn up and became effective on July 1. This will do much to standardize such preparations and prevent the sale of fraudulent products.

Hog Cholera.—The ravages of this disease were felt throughout the West, and especially was this true in Iowa, South Dakota, and Nebraska. The sum of $75,000, appropriated by Congress for demonstrating the possibility of eradicating hog cholera, became available on July 1, and work was commenced in Iowa. Recent work dealing with the occurrence of organisms in the blood and tissues of cholera hogs, in which improved apparatus, including the ultramicroscope and ultra filter, have been used, has cast much light on the subject.

Tuberculosis.—Experiments at the Virginia Experiment Station with the Bang system of eradication, which consists in isolating reacting animals, taking their calves away at birth and feeding on pasteurized milk or with milk from healthy cows, and with them building up a new healthy herd, proved to be financially impracticable. The expense and inconvenience of maintaining a separate herd and the constant danger of reinfection of the healthy herd from this source were found to be too great to make the method practicable, except possibly with very valuable pure-bred animals.

An important report on avian tuberculosis was issued by the Wisconsin Experiment Station. This disease of fowls, which has become of large economic importance, is widespread in its distribution. In fowls, as in mammals, it is an insidious disease, not making itself apparent in the infected bird until it is far advanced, when the bird may for some time have been giving off tubercle bacilli which may infect healthy members of the flock. On account of its slow progress in individual birds and through the flock, it does not attract attention until widespread infection has occurred. The birds in which symptoms appear are usually over one year old, but feeding experiments have shown that young chickens are easily infected. Unlike mammalian tuberculosis, avian tuberculosis is a disease primarily of the digestive cavity rather than of the lungs and neighboring lymph glands. As in bovine tuberculosis, the commerce in diseased fowls is the great means of spreading the disease. The causative organism is differentiated from the bovine and human bacilli by the ease of isolation, rapid growth on media, and its appearance on solid media. Avian tubercular tissues fed to hogs have caused tubercular lesions sufficient to cause the herd to be condemned for food. Human tubercle bacilli fed to fowls during a period of three months failed to produce the disease. There is said to be little reason for believing that the disease in fowls has a hygienic significance for man.

Splenetic or Texas Fever and Tick Eradication. — An appropriation of $325,000 was made by Congress for the continuation of the work of eradicating the cattle tick, which transmits Texas fever. On March 1, 20,000 sq. miles and on Sept. 1, 9,191 sq. miles, or a total of nearly 30,000 sq. miles, were released from quarantine, the cattle tick having been eradicated from this area. Since the work of eradication was taken up in 1906,

193,395 sq. miles out of the 741,551 sq. miles infested have been cleaned of the cattle tick and released from quarantine.

Equine Piroplasmosis. — The first record of the occurrence of this disease in America was made by Dr. S. T. Darling in Panama. The disease appears to be endemic in the interior among native horses and transmitted by the tropical horse tick, *Dermacentor nitens*. Piroplasms were successfully cultivated *in vitro*.

Contagious Abortion. — Investigations of this disease have been continued and it has been found that carbolic acid fed in solution or injected hypodermically, and methylene blue administered by mouth, have a valuable preventive and curative action. Not only is this disease commonly met with among dairy cows, but mares are similarly affected. Investigations by Good and Corbett at the Kentucky Experiment Station have shown that the disease in the mare is caused by an organism different from that in the cow, to which they have given the name *Bacillus abortivus equinus*. These investigators state that in some seasons as many as 70 per cent. of the mares in some studs in Kentucky have aborted, and that in that state alone the loss from this source has run into millions of dollars.

Infectious Bulbar Paralysis.—This Old World disease, also known as pseudorabies and Aujesky's disease, has been reported to occur in several states in South America, this being the first record of its occurrence in America.

Sheep Measles. — Investigations made by Ransom as a result of reports from Federal meat inspectors of the frequence of tapeworm cysts in sheep have shown the damage to be caused by *Cysticercus ovis*, the intermediate stage of a dog tapeworm, *Tænia ovis*. This cysticercus is the source of considerable loss to western sheep men. Some 17,000 of the sheep slaughtered under Federal supervision during the year 1912 prior to Dec. 1, were affected with measles, those badly infested being condemned.

Curative Drugs.—Neosalvarsan administered intravenously was found to cure horses suffering from epizoötic lymphangitis, and salvarsan to cure animals affected with dourine. Experiments with salvarsan in treating contagious pneumonia give further evidence of its curative effect when employed in treating this disease.

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DISEASES OF PLANTS

Walter H. Evans

The American Phytopathological Society met in conjunction with the Association for the Advancement of Science at Cleveland, O., Dec. 31, 1912, to Jan. 3, 1913. A symposium on the international aspect of plant diseases was a feature of the joint programme.

Legislation.—The Plant Quarantine Act of Aug. 20, 1912, was amended to permit the U. S. Department of Agriculture to secure material for experimental and scientific purposes. Modified regulations for carrying out this Act became effective July 1, 1913. On account of restrictions placed by

many countries on the importation of plants, the Board of Agriculture of Great Britain recently adopted a plan to facilitate admission of nursery stock into other countries. Canada and Scotland provide for the inspection of plants intended for shipment to the United States. An ordinance regarding the importation of plants has been promulgated in Tobago and Trinidad.

Non-Parasitic Diseases. — Averna-Sacca claims that chlorosis in grapes, citrus, and coffee trees in Brazil is due to a lack of magnesium and not to an insufficient supply of iron, as others report. Bunzel found a large increase of oxidases in leaves of sugar beets affected with curly top. A number of investigators have reported upon the pathological effect of smoke, gases, and dust from industrial works. Grossenbacher claims that crown rot of fruit trees is primarily due to winter injury loosening the bark near the ground. Allard has stated that the mosaic disease of tobacco, usually attributed to a filterable virus, is probably due to an active living organism.

Rusts and Other Diseases of Grain.—Numerous investigators have reported upon the heteræcious rust fungi, and the alternate generations of quite a number have been discovered within the past year. A considerable number of apparently unattached forms have also been reported upon. The existence of biological races within some of the species of Puccinia seems definitely established. Orton, studying some heteræcious fungi, concludes that there is a close relationship between the genera Puccinia and Uromyces. A disease of wheat and rye, called foot disease, attributed to attacks of several fungi, among them *Ophiobolus graminis*, has caused considerable loss in Europe. Several species of Fusarium have been reported as destructive to cereals in several regions. The timothy rust, *Puccinia graminis*, is said by Johnson to be spreading in the United States. Bolley has given additional data to substantiate his claim that diminished yields of grain are due to soil and seed infestation and not to the depletion of chemical elements from the soil, and Jachewski and Schaffnit have offered corroborative evidence. Eriksson claims that the presence of rust pustules on grain, reported by Olive, Prichard, and others, is of no significance in connection with crop infection. Three distinct species of Helminthosporium are reported to cause diseases of barley in Wisconsin.

Chestnut Bark Disease.—This disease is known to occur from Merrimack County, N. H., to Albemarle County, Va., and westward to Livingston County, N. Y.; Warren and Somerset Counties, Pa.; and Randolph County, W. Va. The control work begun in Pennsylvania has been brought to an end by the Governor vetoing the appropriation, considering the amount given the Chestnut Blight Commission as wholly inadequate. The Federal appropriation of $80,000 for a study of the disease and means for its control has been continued. A study of the fungus has shown it belongs to the genus Endothia, and the name now given it is *Endothia parasitica*, or *E. gyrosa parasitica* if it is considered a variety of a widely distributed species. A non-parasitic form has recently been found near Connellsville, Pa. A chestnut blight which resembles that causing so much loss in the eastern United States has recently been found in China, and this apparently confirms the belief that *Endothia parasitica* is of oriental origin, and was introduced on chestnut trees imported from China or Japan.

White Pine Blister Blight.—This European disease continues to give concern to pathologists in this country. The Cronartium form on the currant, especially on black currants, is known to occur in Massachusetts, Connecticut, and New York, and during the past year the Peridermium form of the fungus was found on a white pine tree of considerable size in New York.

Potato Diseases.—The leaf roll, leaf curl, and black wart diseases of potatoes continue to be of great interest in Europe. The leaf roll disease, the silver scurf due to *Spondylocladium atrovirens*, and the powdery scab caused by *Spongospora subterranea* of Europe are all reported as having been found in the United States. Studies by Riehm have shown that the spores of the late blight fungus, *Phytophthora infestans*, are carried

by rain to a depth of 12 to 15 cm. and infect the tubers, causing their rotting. While spraying with Bordeaux mixture has proved very efficient in controlling potato diseases in the United States, less satisfactory results have been reported from Australia, where the late blight has become very destructive. White, thin-skinned varieties of potatoes are said to be more susceptible to the disease than red, thick-skinned ones, and American varieties are more subject to attack than those of European origin. Two new dry rots of the tubers have been described, one by Wilcox, due to *Fusarium tuberivorum*, the other by Wollenweber, caused by *Fusarium trichothecioides*.

Miscellaneous Diseases. — Shear, Taubenhaus, and others have demonstrated that the large number of species of fungi which have been reported as causing anthracnose can be reduced to a comparatively few valid species. The fungus *Gloeosporium fructigenum*, the cause of bitter rot of apples, has been shown to be physiologically different in America and Europe. Fire blight is becoming prevalent in orchard nursery stock, according to Stewart, and this disease has been recently reported in England and Italy on pears, apples, and plums. Giddings and Bartholomew have shown that the apple rust associated with Gymnosporangium on cedars can be controlled by thorough and timely spraying. The list of host plants of *Bacterium tumefaciens*, the cause of crown gall, has been greatly extended by investigations in California. Güssow has reported the silver leaf, a common disease of fruit trees in Europe, as of frequent occurrence in Canada. A new rot of tomatoes in Holland has been described as caused by *Phytobacter lycopersicum*. The stem-end root of citrus fruits has been found to be due to *Phomopsis citri*. A large number of diseases of tropical economic plants have been reported during the year, and the list will doubtless increase as the flora of the tropics is studied.

Control of Plant Diseases and Fungicides.—Considerable attention is being given to the reduction of losses due to plant diseases. A number of investigators have reported upon partial or complete immunity of certain varieties of economic plants against fungus attack, and the causes of this resistance are being sought. In some instances it seems to be associated with the nutrition of the plants, in others due to the presence of tannin in fruits, thick skins, etc. All these factors are being taken into consideration in breeding experiments for resistance. Trials of many new fungicides have been made and the relative efficiency of others compared. Bordeaux mixture seems still to be preferred, although for some apple and peach diseases lime-sulphur mixtures have given very good results. According to Ewert, Bordeaux mixture, in addition to protecting plants against fungus attack, has a beneficial effect during periods of drought and strong sunshine. In treating grain for smut attacks, soaking the seed in cool water for several hours and then in hot water, 45 to 52 deg. C., for 10 to 15 minutes has been found to give almost complete immunity from attack, without injury to the germination of the seed. Müller-Thurgau has shown that the downy mildew of grapes attacks the leaves through their lower surfaces almost exclusively, and spraying should be directed against these surfaces. Vermorel and Dantony claim that the addition of gelatin to acid copper fungicides and casein to alkaline ones greatly increases their adhesiveness. Hawkins found that concentrated calcium hydroxide used in making Bordeaux mixture increased its efficiency. Pantanelli claims the polysulphide of barium and zinc with sodium superior to any other fungicide tested for the control of peach-leaf curl.

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ECONOMIC ENTOMOLOGY

W. A. Hooker

Quarantines Against Injurious Insects.—Under the authority given by the national Plant Quarantine Act of 1912, a quarantine was maintained against the Mediterranean fruit fly in Hawaii and the gipsy and brown-tail moths in New England, and quarantine was established against the Mexican fruit fly (*Trypeta ludens*) in Mexico; the pink bollworm (*Gelechia gossypiella*) in foreign countries, except Lower California, and in Hawaii; date palm scales in certain counties in California, Arizona, and Texas; and the avocado weevil (*Heilipus lauri*) in Mexico and Central America.

Commencing in January, the *Review of Applied Entomology*, a new journal which gives a summary of the current literature from all parts of the world that has a bearing on economic entomology, was issued monthly by the Committee of the Imperial Bureau of Entomology of Great Britain. Series A of each issue of the *Review* deals with insects injurious to agriculture and commerce, and Series B with insects which disseminate disease.

Necrology.—W. F. Kirby of the British Museum, author of a large number of entomological works on the Lepidoptera, Orthoptera, Odonata, etc., died Nov. 20, 1912, at the age of 68. Peter Cameron, an authority on various groups of Hymenoptera, including the ichneumon flies, died at New Mills, Derbyshire, Dec. 1, 1912, at the age of 65. Dr. C. W. Hooker, entomologist to the Federal Experiment Station in Porto Rico, author of a work on the *Ichneumon Flies of America of the Tribe Ophionini*, died Feb. 12, at the age of 30. Mary E. Murtfeldt of Kirkwood, Mo., well known for her entomological writings, died Feb. 23, at the age of 65. Sir John Lubbock, afterward Lord Avebury, the author of numerous works on insects, died May 28, aged 79. Dr. O. M. Reuter, the author of more than 500 entomological papers dealing largely with the Hemiptera, died at Abo, Finland, Sept. 2, aged 63. A. G. Hammar of the Federal Bureau of Entomology, known for his life-history studies, especially of the codling moth, grape root worm, and grape berry moth, was accidentally shot and instantly killed by a friend on Oct. 16, while deer hunting in New Mexico. Dr. Philip Uhler of the Peabody Library, Baltimore, an authority on the Heteroptera, died Oct. 21, aged 78.

Cotton Boll Weevil.—In its northern spread the weevil has invaded the lower two-thirds of Arkansas and the southeastern quarter of Oklahoma and reached the Tennessee border on the north, and Georgia at its southwest border in the east; it has continued eastward some 50 miles in Florida from Holmes County, which it reached late in 1912. During the year it was discovered that *Thurberia thespesioides*, a wild cotton-like plant which grows in canyons in Arizona, is a host plant of this pest. Prior to this time cotton has been the only known host plant. The importance of this discovery lies in the possible spread of the boll weevil to the attack of cotton which is now being grown under irrigation in Arizona.

Gipsy and Brown-Tail Moths.—An appropriation of $300,000 for work against these pests in coöperation with several infested states was made by Congress for use during the fiscal year commencing July 1, 1913. Investigations have shown that much can be accomplished by the removal from forests of the species of trees on which the young gipsy moth caterpillars subsist, especially the oaks. While it is exceptional for the first-stage caterpillars to develop when their diet is confined to pine, hemlock, juniper, red cedar, ash, and maple, a large percentage of half-grown caterpillars will develop on such trees. Experiments by Burgess have shown that the natural spread of the gipsy moth is accomplished mainly through the young caterpillars being carried by high winds. It was announced that over a considerable territory, centering a little to the north of Boston, one out of every two eggs, caterpillars, or pupae of the gipsy moth were destroyed in 1912 by imported parasites.

Alfalfa Weevil. — The mountain ranges in Utah have not obstructed

the dispersion of this weevil and it has continued to spread in Utah, Wyoming, and Idaho, but has not as yet reached beyond their borders.

Argentine Ant. — This important enemy of field crops, fruits, stored products, household supplies, etc., first discovered in this country at New Orleans in 1891, has continued to spread and colonies are now known to be established as far as the Louisiana border to the west, at Meridian and Vicksburg on the north, and at Mobile on the east.

Potato Tuber Moth.—This moth, which for many years has been the worst potato pest in California, has now reached the state of Washington and southern Texas, and menaces adjacent states. During the year a Farmers' Bulletin was issued for the purpose of warning potato growers and giving general information in regard to remedies.

Plant Lice or Aphids.—The studies of Dr. Edith M. Patch in Maine have shown the woolly apple aphis (*Schigeneura lanigera*), at least in part, to be the progeny of the spring migrants of *Schizoneura americana*, which produces the leaf curl of the elm. Since the danger of injury is greatest to nursery stock and young orchards, the discovery makes it possible to control the injury by removing elm trees from the vicinity of nurseries and young orchards, or starting such at a distance from elm trees.

In investigations made in Oklahoma of the various predaceous enemies of the cotton or melon aphis, Sanborn has found the larvae and adults of certain lady beetles to consume 400 to 600 aphids within periods of 9 to 11 days, while the larva of a syrphus fly consumed 458 aphids in 11 days, thus emphasizing the importance of these predators in the control of some of our most serious pests.

Stop-Back of the Peach.—Investigations in Virginia and Missouri indicate that the affection of nursery stock, commonly known as "stop-back," is caused by the tarnished plant bug (*Lygus pratensis*).

Insects and Disease. — Mitzmain, working in the Philippines, has found the carabao louse (*Hæmatopinus bituberculatus*) to be an agent in the transmission of surra from infected to healthy carabaos, and that flies of the genus Lyperosia are a means of dispersal for this louse.

The House Fly.—Ransom reported the discovery of the house fly (*Musca domesticana*) to be the host for the larva of *Habronema muscæ*, a nematode parasite which in the adult stage lives in the stomach of the horse. Investigations by Howard and Clark have shown that the house fly can carry the virus of infantile paralysis in an active state for several days upon the surface of its body, and for several hours within its gastro-intestinal tract.

The Stable Fly.—An outbreak of *Stomoxys calcitrans* occurred in North Texas and was the source of considerable loss to stock owners. Experiments have shown that this fly may mechanically transmit the causative trypanosomes of surra, dourine, and sleeping sickness. Investigations in pellagrous districts point to the stable fly rather than to buffalo gnats (Simulidae) as playing a rôle in the transmission of pellagra. Further investigations cast some doubt upon the supposed transmission by this fly of infantile paralysis.

Sacbrood of Bees.—Much advance has been made during the last few years in our knowledge of the diseases of the honey bee, especially of the important brood diseases. During the year Dr. G. F. White, bacteriologist of the Federal Bureau of Entomology, who has been engaged for a number of years in the study of these diseases and has previously reported upon important studies of the foul broods, announced the discovery of a filterable virus to be the cause of a distinct disease of the brood, which has often been mistaken for one of the foul broods. To this disease, which is known to occur in all of the states of the Union but three, the name "sacbrood" is given because of the characteristic sac-like appearance of the larva when removed from the cell.

Insecticides. — Investigations have shown that the lime-sulphur wash has a decided value as a stomach poison for various caterpillars. The use of flour paste was found to greatly in-

crease the efficiency of lime-sulphur spray in combating red spiders, as well as aiding as a spreader for insecticides. Experiments in New York show one pound of zinc arsenite to be equal in effectiveness to three pounds of lead arsenate. When added to calcium hydrate or Bordeaux mixture, zinc arsenite caused no injury to apple foliage. The severe injury caused at times by oils or oil preparations when applied to dormant trees led to investigations which indicate that there is less danger of penetration by oil and a consequent injury if the applications are made in the spring shortly before active growth begins.

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AGRICULTURAL LEGISLATION

H. L. Knight

Federal Legislation.—The principal laws of agricultural interest enacted during the year were the Agricultural Appropriation Act (see *Agriculture, infra*), which included the McLean bill for the protection of migratory and insectivorous game birds, an authorization of a Federal commission to study rural credit facilities in Europe (see *Rural Credits, infra*), and a provision regulating interstate commerce in virus, serums, etc., for the treatment of animal diseases (see *Diseases of Live Stock, supra*); an amendment to the Sundry Civil Appropriation Act prohibiting the use of certain funds for the prosecution of farmers' organizations (see I, *American History*); the Tariff Act, which removed the duties from a large number of farm products, and materially reduced those of many others (see I, *American History*); and an amendment to the Food and Drugs Act of 1906, requiring the labeling of most package goods manufactured or imported after Sept. 3, 1914, to show the approximate net quantity of their contents.

Agricultural Extension and Vocational Education.—The Lever bill, carrying an annual appropriation of about $3,500,000 per annum to the states for the maintenance of agricultural extension work through their agricultural colleges, which passed the House in 1912 (*A. Y. B.*, 1912, p. 467), failed of enactment in the Sixty-second Congress after the Senate had substituted for it, by a vote of 31 to 30, the text of the Page bill, a much more comprehensive measure, which also included large Federal appropriations for vocational education and branch experiment stations. The Lever bill was reintroduced in the Sixty-third Congress in somewhat modified form, in that the work is made cooperative with the United States Department of Agriculture, with a di-

rector of coöperative agricultural extension work therein. The Page bill also was reintroduced. A resolution providing for the appointment of a commission to consider the need of, and report a plan for, Federal aid to vocational education was passed by the Senate in June, and was the unfinished business before the House on Nov. 20.

Rural Credits in Congress.—Several bills were introduced to aid farmers to obtain loans on more convenient terms than at present. One of these proposed a national rural banking system, with special rural banks for handling farm loans. Another bill would permit the Secretary of the Treasury to make loans to farmers directly, and a third would establish a rural credit bureau in the Department of Agriculture, with state subdivisions having authority to approve bond issues. The extension of the powers of existing national banks to permit loans on farm lands was being advocated, as was also the encouragement of voluntary farmers' loan associations similar to those in Europe. (See also *Rural Credits, infra.*)

State Legislation.—The legislatures of 42 of the states were in session in 1913 and agricultural legislation of unusual amount and importance resulted.

Marketing Farm Products.—Several states took up the regulation of sales of farm produce on commission and other marketing problems. In New York, commission merchants must now be licensed by the state Commissioner of Agriculture and file bonds of $3,000 as a guaranty of honest accounting on the proceeds of sales. Licenses may be revoked on account of dishonest practices and violations of the Act are also made a misdemeanor. A similar law was enacted in Michigan and one went into effect in Oregon, while Missouri amended its laws to require a more stringent accounting by commission merchants. New York also provided for the licensing and regulation of the business transactions of milk contractors.

Texas appropriated $15,000 to gather information on marketing methods. Nebraska enacted more stringent laws against discrimination on the part of elevator companies and required railroads to provide additional facilities to handle produce.

Agricultural Coöperation and Credit.—A constitutional amendment became effective Jan. 1, 1913, in Louisiana under which trust companies formed for the sole purpose of loaning money on farm lands are exempted from taxation for a period of 20 years. Massachusetts, New York, and Texas authorized the formation of agricultural coöperative banks, and Indiana that of agricultural coöperative associations. General legislation as to coöperative associations was enacted in Michigan and Washington. In New York an assistant to the state commissioner of agriculture was appointed to assist in organizing and maintaining agricultural coöperative enterprises.

County and Other Farm Advisers.—No fewer than nine states, namely, Michigan, Missouri, Montana, Nebraska, New Hampshire, North Dakota, Oregon, Pennsylvania and Utah, authorized counties to employ farm experts for advisory and demonstration work. In most instances, the direction of the work was entrusted to the state agricultural college in cooperation with the Department of Agriculture. New York and Ohio extended powers previously conferred. A state Bureau of Farm Development was established in Washington to assign experts to counties desiring them. In California, power to appoint experts was given to irrigation and drainage districts. Illinois and Iowa authorized the formation of county associations to engage in similar development work.

Agricultural Education in Schools.—Iowa required the teaching of elementary agriculture, domestic science, and manual training in all public schools of the state after July 1, 1915, and extended additional aid to consolidated schools teaching these subjects. Michigan broadened its laws relating to county schools of agriculture. Nebraska granted $1,250 a year to each of the 30 accredited high schools offering at least two years of high school work and an approved normal course in these subjects, and also allotted $50 per year to each rural school district giving approved instruction in association with these

high schools. Wisconsin granted $100 per year to districts maintaining state graded schools with special work in agriculture. New Jersey authorized summer schools in agriculture, home economics, and manual training.

Inspection Laws.—Agricultural inspection work in Ohio was concentrated in an Agricultural Commission. In Washington, a state Department of Agriculture took over executive duties of this nature, and a similar arrangement as to enforcement of the inspection laws was adopted in Maine.

Laws analogous to the Federal Plant Quarantine Act of 1912 were enacted in Missouri, Montana, and Oregon. Legislation as to the inspection of orchards and nursery stock was strengthened in Arkansas, Idaho, Nebraska, Ohio, West Virginia; as to contagious animal diseases, especially hog cholera and bee diseases, in Connecticut, Idaho, Indiana, Iowa, Maine, Michigan, Missouri, Montana, Nevada, Ohio, Oregon, South Dakota, and Wyoming; and as to weed eradication in Iowa, Oregon, and Washington. New seed inspection laws were enacted in Michigan, Minnesota, Montana, North Dakota, Ohio, Oregon, Pennsylvania, South Dakota, Wisconsin, and Wyoming; and new stallion registration laws in Iowa, Kansas, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

The inspection of food and dairy products was broadened in Iowa, Michigan, Oregon, and South Dakota to require the labeling of package goods to show the net quantity; in Iowa, Ohio, South Dakota, and Wyoming by requiring sanitary inspection of bakeries, canneries, and other food-handling concerns; and in Connecticut, Iowa, Nebraska, and North Dakota by the regulation of cold storage practices. Nebraska, Nevada, New Jersey, New York, and Utah also amended their pure food or dairy products laws. New codes of weights and measures on farm produce were adopted or altered in Iowa, Minnesota, New York, and Ohio. Maine and Montana regulated the size of containers for apples, while Utah required labeling as to the owner and grade of the fruit.

Other changes in inspection laws were made in Kansas, Ohio, and Oregon as to feeding stuffs; Iowa and Michigan as to fertilizers; and North Dakota and Ohio as to insecticides and fungicides. Ohio and New Jersey began the inspection of agricultural lime, and Michigan the testing of sugar beets at factories.

Irrigation and Drainage.—Kansas established a state Board of Irrigation with authority to install pumping plants and experiment with irrigation methods and crops, and also allowed its counties to purchase well-drilling machinery. Washington made a comprehensive amendment to its irrigation laws, and California, Idaho, Nebraska, Nevada, New Mexico, Oregon, Utah, and Wyoming more or less important changes.

Vermont authorized municipalities to issue bonds with which to make long-term loans to farmers for drainage work. In Michigan a constitutional amendment is to be submitted authorizing counties to issue bonds for drainage and other means of agricultural improvement. Massachusetts made an initial appropriation of $15,000 for the reclamation of its wet lands, and Nevada authorized its counties to drain swamp lands dangerous to health. Missouri and Washington revised their drainage laws in a comprehensive way and changes were also made by Idaho, Illinois, Indiana, Iowa, Kansas, Michigan, Nebraska, Oregon, South Dakota, and Utah.

Miscellaneous.—Washington provided for the establishment of agricultural development districts to assist especially in utilizing cut-over or otherwise unimproved lands. Another law exempted fruit trees from taxation. Michigan exempted for four years cut-over and wild lands being brought under cultivation.

A Philippine law appropriated about $200,000 for the establishment and maintenance of colonies and plantations on public lands under a five-year homestead system. Another act authorized the establishment of a series of stations for instruction and demonstration purposes.

New Hampshire established a Department of Agriculture, Montana a Department of Agriculture and Publicity, Ohio an Agricultural Commission, and California a Viticultural

Commission. Iowa encouraged the formation of dairy and beef cattle associations.

The Board of Agriculture of North Carolina was authorized to quarry lime with convict labor and sell it at cost to farmers. Utah placed a special tax on domestic animals to provide bounties on wild animals. Massachusetts towns and cities were authorized to appoint bird wardens.

HORTICULTURE

E. J. Glasson

Crop Conditions.—With some local exceptions, 1913 was an off year for commercial horticulture. A freeze in January reduced the California citrus crop to about 5,500,000 boxes, as compared with the short crop of 12,000,000 boxes in 1912. On the other hand, Florida with a banner citrus crop of over 8,500,000 boxes welcomed the opportunity to enter into markets previously supplied by California. Belated spring frosts, an extended summer drought, and numerous insect pests kept most crops below normal, both in the United States and Canada. The apple crop in this country was estimated at about 27,000,000 bbl., as compared with 41,770,000 bbl., the revised figures for 1912. The peach and grape crops were also greatly reduced. The Department of Agriculture estimated the Irish potato crop at 325,000,000 bu., as compared with the final yield of 420,000,000 bu. in 1912. The onion crop was about 2,000,000 bu. below the 1912 yield of 6,647,500 bu. Dried and canned fruit and vegetable packs were generally short, and were being called for in Europe, where crop production likewise suffered from inclement weather conditions.

Export Trade.—In the fiscal year ending June 30, 1913, the United States exported $6,924,883 worth more of fruits, vegetables, and nuts, and imported $9,940,728 worth less of these products than in 1912. The export figures are: fruits, $36,345,517; vegetables, $7,353,537; nuts, $733,585. The import figures are: fruits, $28,657,084; vegetables, $11,358,761; nuts, $13,965,569. Fresh apples to the value of $7,898,634 were exported in 1913, as compared with $5,409,946 in 1912. There was a general increase in exports of dried and canned fruits and vegetables. The potato import decreased from $7,168,627 in 1912 to $303,214 in 1913, and will continue small indefinitely (see "Potato Quarantine," *infra*). Of the total fruit imports, bananas alone amounted to $14,484,258. The United States now imports annually over $1,000,000 worth of preserved mushrooms, largely from France.

Potato Quarantine. — The Federal Horticultural Board of the United States Department of Agriculture decided to continue indefinitely the quarantine declared against foreign potatoes in 1912 on account of the potato wart or black scab, which has thus far not appeared in this country. This disease is considered by plant pathologists to be so dangerous that should it get into our potato-growing districts the effect upon the industry would be little short of a national calamity. The quarantine does not exclude potatoes from Bermuda or Canada (see also *Economic Entomology, supra*).

Frost Prediction. — The Weather Bureau of the Department of Agriculture now has about 75 special meteorological stations that are maintained as adjuncts to the work of the forecaster in making special frost predictions for the fruit, truck, vineyard, and cranberry interests of the various portions of the country. In North Carolina numerous "orchard" stations have been established, and a special investigation is being made of the thermal belts along the Blue Ridge Mountains that are particularly favorable for the development of fruit interests, owing to their practical immunity from damaging frosts.

Potato Culture.—In the Irish potato investigations of the Department of Agriculture it has been found that practically all European varieties, even when free from disease, are unfit for culture in the United States as compared to the best of our own. The hill-selection and tuber-unit method of breeding potatoes for maintaining the vegetative vigor and productivity of our standard sorts has

been improved and has given remarkable results in some regions where crop failures have been a severe blow to the potato industry.

Tea Culture.—The culture of American tea has been developed to the extent that an annual demonstration crop yielding 14,000 to 16,000 lbs. of high-grade tea finds a ready market in competition with imported teas.

Drug Plants.—As a result of investigations with drug plants and related crops the culture of golden seal and paprika peppers has been successfully established in this country. Camphor culture has been introduced in Florida with results sufficiently promising to attract private capital on an extensive scale (see also *Agriculture, supra*).

Ginseng.—In Farmers' Bulletin 551 of the Department of Agriculture, on "The Cultivation of American Ginseng," Walter Van Fleet sums up the future prospects of this much exploited industry as follows:

> Under the present conditions of production ginseng offers attractive possibilities to patient cultivators who are in sympathy with the limitations of growth and the slow development of woodland plants in general, and who are willing to make a material outlay with only scanty returns in view for several years to come, but it holds out little inducement for inexperienced growers looking for quick profits from a small investment.

A Parasite for the San José Scale.—As a result of extensive investigations during the past three or four years, H. A. Surface, State Zoölogist of Pennsylvania, has announced the discovery of several hymenopterous pārasites that have effectively cleaned up the San José scale in many seriously infested Pennsylvania orchards. As an outcome of this work, Dr. Surface states:

> We can now say that we know that the San José scale can be kept in check by natural enemies, and that at best it will have its periods of increase and depression at intervals, the same as other insects, instead of sweeping everything before it, as it has done in this state during the past decade and a half. Going to the edges of the parasitized and unparasitized districts we are able to get parasites in abundance, and send these and the living but parasitized scale to regions where the parasites have not already reached.

A New Orange Separator.—Early in the year Ethan Allen Chase of Riverside, Cal., invented a successful device for the separation of frozen oranges from sound fruit, and then gave the patent to the public by having it issued in the name of the Government. Instead of the expensive alcohol bath, which is the basis of other successful separators, this device uses water. The water is forced through a zinc-lined chamber by means of a 4-in. centrifugal pump. When dropped into the swiftly moving current, the sound and unfrosted fruit sinks to a greater depth than the lighter and damaged fruit. The good fruit passes out at a point where it can be connected up with a grader and delivered to the packer. California orange returns for the year were materially increased by this invention.

The Florists' Telegraph Delivery.—Within the past few years commercial florists have been developing a flourishing organization which is designed to permit a florist in one city to fill orders at any distant point. The organization now numbers over one hundred members in various parts of this country and Europe. Orders are often given and paid for in this country for delivery to tourists in Europe, while a buyer may pay for flowers in New York and have them promptly delivered in San Francisco.

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CONSERVATION OF WILD LIFE

GEORGE GLADDEN

Federal Protection of Migratory Birds.—The rapidly growing strength and aggressiveness of American sentiment in favor of wild-life conservation was revealed in 1913 by two boldly conceived and successfully executed national movements, and considerable state legislation, having that end in view. The most important resulting legislation was embodied in the "Regulations for the Protection of Migratory Birds" by the Federal Government. This measure may fairly be considered more significant in its basic principle, as it certainly is more far reaching in its effects, than any having a similar purpose that has ever been enacted into law in the United States.

This principle is the right of the Federal Government to protect *migratory* birds, or, as the idea is expressed in the "Regulations" which have been adopted, "migratory game and insectivorous birds which in their northern and southern migrations pass through or do not remain permanently the entire year within the borders of any state or territory." Such birds, the "Regulations" state, "shall hereafter be deemed to be within the custody and protection of the Government of the United States, and shall not be destroyed or taken contrary to regulations herein provided therefor." This idea was first expressed (for legislative purposes) in a bill introduced in the House of Representatives in 1904 by George Shiras, 3d, of Pennsylvania for protection of migratory game birds. A number of similar bills, relating to both game and non-game birds, were introduced in Congress during the next eight years, on which no action was taken. In March, 1912, a movement was begun for the protection of migratory game birds, and in the following September this campaign was supplemented by a second instituted by Dr. W. T. Hornaday, director of the New York Zoölogical Park, in support of the McLean Bill (introduced in April by Senator McLean, of Connecticut) for the protection of insectivorous migratory birds generally. This movement was effectively promoted by the New York Zoölogical Society, the National Association of Audubon Societies, led by its secretary, Mr. T. Gilbert Pearson, the American Game Protective and Propagation Association, and various other organizations and individuals. Through their efforts the McLean bill was enacted as a rider to the Agricultural Appropriation Act approved by President Taft on March 4. It seems entirely clear that the success of this campaign was due to the effective emphasis laid upon the economic value of the non-game birds as destroyers of insects which damage crops and foliage.

A series of regulations formulated by the Bureau of Biological Survey, in pursuance of this Act, were approved by President Wilson on Oct. 1. Through them the Federal Government undertakes the guardianship of about 600 of the 1,200-odd species and sub-species of birds which are considered permanent or transient residents of the United States. Of these, about 400 species are included in the category of "migratory insec-

tivorous birds," many of which have hitherto been killed annually in great numbers as "game" or for food, especially in the southern states. All of these birds are given absolute protection at all times under the new regulations. Much more effective protection is also given to about 140 species of "migratory game birds." These include over 50 species of waterfowl, which may no longer be hunted in the spring months, an exceedingly destructive practice, as they were (in 1913) under the existing laws of 10 states. Furthermore, closed seasons, between Jan. 1 and Dec. 31, are prescribed for all migratory birds along the courses of the Mississippi River, between Minneapolis, Minn., and Memphis, Tenn., and the Missouri River, between Bismarck, N. D., and Nebraska City, Neb. Although the regulations have been severely criticized in certain particulars, especially in respect to their failure to make more nearly uniform the closed season in adjacent states for certain waterfowl, and to give much-needed protection to several now rapidly disappearing species of shore birds, they will, if properly enforced, effect an enormous improvement in the deplorable conditions created by the notoriously stupid or inadequate legislation in various states, under which much of the avi-fauna! life of the country was being rapidly exterminated.

Protection of Foreign Birds by the United States.—Even more significant than this concerted movement for the better protection of American birds, was the inclusion in Schedule N of the Underwood Tariff Act of the New York Zoölogical Society's measure prohibiting the importation of all foreign wild birds' plumage, except for scientific or educational purposes. Dr. Hornaday, the author of the measure, and Mr. Pearson carried on a nation-wide campaign, citing the fact of the rapid disappearance of about 100 species of beautiful and interesting birds in consequence of the demand for their plumage for millinery, and urging the American people no longer to countenance the traffic in plumage. Although it was clear that the appeal was made chiefly on behalf of foreign birds, the response was prompt and emphatic on the part of both the press and the public generally. Most effective support of the movement came from the National and State Federations of Women's Clubs, whose members sent to Washington thousands of letters demanding the enactment of the New York Zoölogical Society's measure.

State Legislation.—No less than 11 states enacted in 1913 laws of sufficient scope to be considered wild-life conservation measures, while others revised their game laws with the same end in view. The former kind of legislations may be summarized by states as follows:

Arizona.—An act prohibiting the sale of native wild game.

California.—An act (similar to the Bayne law, in New York) providing for the rearing and sale by the state of game birds and animals; a measure prohibiting the sale of wild game birds and animals, excepting rabbits and geese, which, however, was set aside by a referendum vote; a measure making it an indictable misdemeanor to kill or take sea otter, an almost extinct species; an act establishing a game preserve in the Cleveland National Forest.

Kansas.—An act prohibiting the sale of native wild game birds, whether taken in the state or not, and providing a five-year closed season on quail, prairie chicken and foreign pheasants.

Massachusetts.—An act authorizing cities and towns to appropriate money for the protection and encouragement of birds which live upon insects injurious to crops and trees.

Montana.—Acts prohibiting the killing of ewes and lambs of Rocky Mountain sheep, protecting elk in certain sections of the state at all times, and establishing the Sun River Game Preserve, of 30,000 acres, in the northern part of Lewis and Clark County, a resort for elk, deer and mountain sheep.

New Jersey.—Acts prohibiting the decoying of wild fowl by means of food; prohibiting the sale of squirrel, deer and game or song birds taken in the state (ducks, geese, brant and rabbit excepted); and prohibiting the manufacture, sale or possession of any air-gun or similar weapon, this last in part to lessen the destruction of birds by boys.

Ohio.—An act protecting quail, Carolina doves and pheasants until 1915.

Pennsylvania.—Acts prohibiting the sale of the plumage of useful birds; prohibiting the sale of game killed within the state; protecting doves, killdeer plover and blackbirds, and also elk, of which 100 were freed in the state, until 1921; and authorizing the Game Commission to declare a closed season of five years on elk and deer in any county so petitioning.

South Dakota.—An act providing for an indefinite closed season on quail.

Wisconsin.—Acts providing an indefinite closed season on moose and elk.

Wyoming.—An act to establish the Shoshone Game Preserve, between the forks of the Yellowstone River, in the northwestern part of the state, for the preservation of elk, mountain-sheep, mule deer, white-tailed deer, and grizzly bear.

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RURAL CREDITS

R. INGALLS

The Movement in the United States.—The movement to improve rural credit facilities in the United States became a national issue in 1912 when resolutions were adopted regarding it by the Republican, Democratic and Progressive parties and inserted as planks in their respective platforms. It began, however, sometime previous to that date. On Oct. 26, 1910, Myron T. Herrick started a campaign at Delaware, O., for coöperative land banks. On Nov. 24, 1911, he induced the American Bankers Association at its convention in New Orleans to appoint a committee to investigate the general subject of farm financing in relation to conditions in the United States. In the meanwhile two other forces working independently gave strength to the movement. The Jewish Agricultural and Industrial Aid Society founded three coöperative credit banks for Jewish farmers in Connecticut and New York in May, 1911, and under the influence of its manager, Leonard G. Robinson, became a propagandist of agricultural coöperation. These banks, which have now increased in number to 17, are the first coöperative credit banks for farmers in the United States. But they are antedated by a non-agricultural coöperative credit society founded at Manchester, N. H., on Nov. 22, 1908, and by a number of credit unions founded under the Massachusetts law of 1909.

On April 1, 1912, a conference on rural coöperative credit held at Nashville, Tenn., under the auspices of the Southern Commercial Congress, resolved to assemble a commission of one or more representatives from every state to go to Europe and make a study of the Raiffeisen, Schulze-Delitzsch and landschaften systems and their variants. Congress passed a joint resolution accrediting this commission to foreign countries, and also provided in the Agricultural Appropriation Act, approved March 4, 1913, for a Federal commission of seven members to be appointed by the President, to work in conjunction therewith, and render a report on rural coöperation and agricultural credit systems in foreign countries. Five members of this Federal commission accompanied by two delegates from each of 29 states, named by their governors, and from each of four Canadian provinces, sailed for Europe on April 26, and returned on July 26, after having visited 14 countries. The report of this commission was submitted to Congress in December with recommendations for state and national legislation regarding coöperative credit and land banks.

Rural Credit Conditions in the United States.—The advocates of the rural

credits movement contend that existing banking facilities are inadequate for the needs of agriculture, although the statistics they offer regarding the matter are meagre and incomplete. The debt of the American farmers, in 1910, was estimated at $5,000,000,000, of which $2,793,000,000 was secured by real estate mortgages. The Department of Agriculture estimates that the average interest rate paid by farmers in 1913 was 7.75 per cent. per annum, with extremes of 12 per cent. and 5 per cent. or about the prevailing rate for money in the localities covered by its investigation. (See also *Agriculture, supra.*)

These figures of interest rates were compiled mainly from statements of bankers, and are probably correct so far as they go. But bankers habitually handle nothing but the best kind of business, and this constitutes a very small portion of the whole. The true situation could be ascertained only by taking into consideration the business that does not reach the banks and trust companies, such as the credit indirectly accorded by implement dealers and country merchants, the loans of private money lenders, and the liens and sale contracts which they often obtain on growing crops. Mr. Robinson has reported to his society that many instances were brought to his attention "in New York, New Jersey, Connecticut and Massachusetts, where farmers have been paying 24 per cent. per annum and more for accommodations." The Industrial Commission a few years ago estimated the interest rate imposed upon cotton growers at 20 per cent. per annum.

Rural Credits in Europe—The interest rate paid by farmers who are members or borrowers of the credit societies or land banks in European countries is invariably lower than the commercial rate for personal loans, and only a point (if any) above that of government bonds for real-estate loans. Moreover, ample funds are always available for their needs. The establishment of these institutions not only lowered interest rates but was followed by an improvement in the moral and social as well as material condition of the rural classes. Consequently the organization of land and agricultural credit is treated in Europe both as a social and a financial problem. A similar spirit is noticeable in the movement for improving farm credit facilities in the United States. This movement has two distinct objects. The first is the introduction of the coöperative credit idea, and the second is the reorganization of land credit by the creation of land-credit institutions capable of employing the principle of amortization and granting long-term reducible mortage loans.

Coöperative Personal Credits in Europe.—A coöperative credit society is an association which has no maximum for the number of members or amount of capital stock, and is empowered to receive money from all sources and accord credit to members only. A capital stock is not essential, but if the society provides for one, it must be created entirely by subscriptions of persons who are members. Since it increases or diminishes with additions or withdrawals, it is called variable, as distinguished from the capital of a corporation, which is fixed.

The Schulze-Delitzsch and Raiffeisen Systems.—The originator of the coöperative credit idea for short-term loans was Hermann Schulze, who was born on Aug. 29, 1808, at Delitzsch, in Prussian Saxony, and died at Potsdam on April 29, 1883. Schulze-Delitzsch, as he called himself, founded the first credit society ever created, at Delitzsch in 1848. In 1849 Frederick William Raiffeisen, who had been employing coöperation in helping the poor in his neighborhood since 1847, founded a similar society at Flammersfeld in the Rhine Province. Whether he then had knowledge of the work of Schulze-Delitzsch is a disputed question. Schulze-Delitzsch and Raiffeisen antagonized each other all their lives. Two systems of credit societies sprang up under their leadership with fundamental points of difference, although based on the same general principles. Both insisted upon unlimited liability and the limitation of each member to one vote, but Schulze believed that a credit society should have a capital stock, that members should be required to pay entrance fees and encouraged to buy

shares, that the shares should draw dividends, that officials should receive salaries, and that the size of the society was a proof of its strength. Raiffeisen on the other hand opposed all this. He substituted for the capital stock an indivisible reserve composed of the profits of the society, and when this fund became large enough to guarantee the operations of the society, he caused the interest charged on loans to be reduced or the excess of profits to be used in some altruistic way. He depended on the religious spirit and brotherly love instead of the desire for gain, as the welding forces to hold the members together; and as a consequence he assigned a specified area to each of his societies, and strove to keep it so small that all its members should be mutually acquainted and take an active part in the management.

The Raiffeisen credit societies in Germany to-day, although required to have a nominal capital under the law, maintain the principles of their founder. They are small neighborhood associations in rural localities, and in addition to receiving deposits and according credit, they make collective purchases for members, and look after their moral, religious and material welfare. Many of the Schulze-Delitzsch societies have become veritable banks with limited liability, whose numerous members pay only slight attention to the management. Large numbers of them have suffered bankruptcy, while no Raiffeisen society, it is claimed, has ever occasioned the loss of a penny to a depositor or creditor. Generally speaking, the coöperative credit societies in the rural districts of Germany are of the Raiffeisen type and those in the cities are of the Schulze-Delitzsch type. The latter have not united one with the other except in three instances. But the rural-credit societies have combined to form provincial banks, and over these are two banks of a national scope. Besides these is the government central cooperative bank of Prussia, whose services are available for both systems.

The only European nations where rural coöperative credit has not appeared are Norway, Sweden, Luxemburg, Greece, Monaco, and Montenegro. It has made noticeable headway in Ireland, Belgium, Holland, Germany, France, Austria-Hungary, Russia, Switzerland, Italy, Bulgaria, Roumania, and Servia. In France and Russia it is financially assisted to a large extent by the state. This is also the case in Tunis and Algeria, where France has aided its introduction. It has gained a firm foothold in British India and Japan. There are over 105 credit societies in Canada, many members of which are farmers. The credit societies of these various nations are all copies or adaptations of the Schulze-Delitzsch or Raiffeisen types, and where composed mainly of farmers, show a pronounced tendency to restricted area and unlimited liability. Small local units of this kind grouped into regional banks under one or more central banks make the proper system, according to European students of farm finance. Combination is essential to the full development of agricultural coöperation.

The German Raiffeisen credit societies make loans of three years and even longer. They are recallable, however, at the will of the society on a few months' notice. The credit accorded by other societies is usually for short terms and small amounts, and is either a straight loan on a promissory note, an acceptance on a paper in the form of a bill of exchange, or an agreement to let the member draw against his account up to a specified amount. The security required is the endorsement of one or more friends. Collateral and chattel mortgages are rare, and real-estate mortgages are not taken except by way of secondary security or as an investment for surplus funds.

Land Credit in Europe.—The method devised for organizing land credit in Europe is the creation of institutions authorized to grant long-term loans on mortgage reducible by periodical payments (amortization), and to issue debentures unrecallable by the holder, in representation of these loans, for the purpose of raising funds for operations. The institutions are either associations of borrowers (landschaften), joint stock

companies, public corporations guaranteed by the state, or governmental bureaus endowed with state funds. A long term is any period between 10 and 75 years.

Amortization.—There are four kinds of amortization. The first is the extinction of the loan by equal payments, whereby the borrower is required to pay together with his interest annually, semi-annually or quarterly, an agreed portion of the principal. This method is used by the rural coöperative credit societies.

The second is the German landschaft method. Here the borrower pays interest on the full amount of the loan until its complete extinction, and also at least one half of one per cent. annually in addition thereto in order to meet his portion of the working expenses of the association. Whatever remains over is credited on his loan as a special extinction fund, and when this equals the loan the debt is considered paid. By this method the duration of the loan cannot be fixed in advance. The loan is in fact a continuous credit, the termination of which depends upon the savings of the association and the amount of its working expenses.

The third is the method employed by the German savings banks. Here the borrower pays an annual sum which exceeds the interest on his mortgage by at least one half of one per cent. until the original sum is completely extinguished. This extra sum is credited to the borrower on a special account on which the bank pays interest at the current rate. Payments are continued by the borrower until his credit in this account balances the loan, whereupon the mortgage is cancelled. The disadvantages of this method are that the bank's interest is usually lower than that on the mortgage, and that fluctuations thereof render it impossible to fix in advance the exact period within which the extinction of the loan will occur.

The fourth is the extinction of the loan by annuities. An annuity comprises the interest plus a sum determined by the rate of the interest and the length of the loan. The annuity is generally paid half-yearly in advance. The longer the period chosen, the smaller of course is its size. Upon the payment of an annuity, the interest on the capital remaining unpaid is deducted therefrom and the remainder is applied as an instalment on the principal. By this method, while the annuity remains level or fixed, the portion of it used for interest gets smaller and the portion available for the reduction of the principal grows correspondingly larger each succeeding year, so that by a progression slow at the start but which becomes more rapid with the course of years, the debt gradually diminishes and finally disappears within the calculated period. This method was devised by the Crédit Foncier de France, and is used by land banks of all European countries and for loans made from government funds or by corporations guaranteed or managed by the government.

Debenture and Mortgage Bonds.—The extending of credit at the low interest rates which farmers can afford to pay is profitable only when repeated and rapid turnovers may be made of the money so employed. For this reason it is not practical for private individuals to sink their savings nor for companies their capital stock, for the long time required for repayment by the slow returns from agriculture and land improvements. Business on an appreciable scale in such loans can be carried on only by concerns which are able to draw funds from the general investing public. The instruments for this purpose are the debenture and the mortgage bond. The difference between these two is that the first is issued simply in representation of loans made, while the second is secured by a specified mortgage or mortgages. If such an instrument is a safe and attractive security, the issuing company can, by the sale thereof, immediately recover the amounts it has sunk in long-term loans regardless of the length of the period, and put them back to the same use again and again, and thus by an endless process cause money to flow in a steady stream and sufficient volume for its operations. This process is known as the mobilization of land values. But no institution could use this process or grant long-term loans reducible by the land-

schaft and annuity kinds of amortization at least, if it were compelled to pay its debentures or bonds within a shorter period than that of its loans. Hence these instruments must be unrecallable on the part of the holders; and such is the case with all European institutions which grant amortizable loans. The unrecallable debenture is indispensable for the full play of amortization.

The German Landschaft.—The landschaft is the earliest form of a land-credit institution. The first one was formed in 1769 by Frederick the Great, who forced all the nobility of Silesia to join an association, the object of which is to issue guaranteed debentures. The chief officers of the landschaft are invested with public authority and are appointed by the Crown upon nomination by its members. Their administration is subject to the control of the Government. Members have no voice in the management except to vote at elections. Each member has the right to have his land appraised and to obtain debentures from the association up to a certain portion of the appraised value. He sells these at whatever price they will bring and thus he gets the money he needs. They are secured by the joint-and-several liability of all members, and are a first lien on all their lands and of those of the Crown and the Church in the province.

The landschaften issue and guarantee debentures for members only, but they have no other coöperative feature except the mutual liability of members. There is no landschaft outside of Germany, but associations of borrowers more or less similar thereto exist in Austria-Hungary, Belgium, Denmark, and Russia, while real-estate loans are made on the mutual liability of groups by certain concerns in Sweden, France, and Switzerland.

Land Credit in France and Italy.—Especial efforts to organize land credit have been made in Germany, France, and Italy. The law enacted by France in 1852 is the model which other nations have followed more or less for regulating mortgage companies and encouraging their formation. This law places such companies under government supervision, subjects them to certain restrictions to safeguard borrowers and the public, and invests the companies with special privileges so they may protect themselves against defective titles to mortgaged properties, and effect a speedy recovery on their loads in case of default.

A semi-public corporation, the Crédit Foncier, operates under the law in France with a practical monopoly. In Germany there are 37 mortgage companies, and others may be formed and authorized to do business by complying with the provisions of the Federal law enacted in 1899. The license must be obtained from the Federal Government if the company intends to operate in two or more provinces; otherwise it is obtained from the province where it has headquarters. The companies are profit-making concerns and aim to declare as large dividends as possible. In Italy five institutions have been specially privileged, and are authorized to make mortgage loans throughout the kingdom. One of them is similar to the Crédit Foncier of France. The four others are savings banks with a benevolent character, which do not strive to make profit.

FORESTRY

E. J. Glasson

Progress of the Forestry Movement.—The spread of the forestry movement is becoming nation-wide. At the present time 34 states are showing active, practical interest by state action in forestry. Twenty-four of these states have organized forest fire-protective systems, and in 25 states citizens may be called upon to aid fire fighting, with a penalty in most cases for refusing to aid. In 30 states protective measures have been enacted concerning clearing rights of way, patrol, spark arresters, slash disposal, etc., applying to railroads, lumbermen and others.

Fourteen states are now actively coöperating with the Federal Govern-

ment in the protection of the forested watersheds on navigable streams. These states will expend an aggregate of $3 for every dollar which the Federal Government spends, to which may be added about $2 more from private sources. Private forest owners have awakened to the value of protecting their own holdings from fire and are also coöperating in official protective measures. In Oregon, Washington, Idaho and Montana alone over 20,000,000 acres of privately owned timber are being efficiently patrolled by 22 patrol associations. The most important development in fire protection along railway lines is the effort of the Canadian Railway Commission, which has organized fire protection on some 25,000 miles of railroad, bringing all official agencies at the same time into coöperation.

Forest Legislation.—With taxation laws as they generally exist, afforestation projects cannot prove so attractive to capital as other less hazardous opportunities. During the year Pennsylvania enacted taxation principles which have been practically accepted by the American Conservation Association as one of the bases upon which timber conservation must rest. The Pennsylvania laws provide for a low annual tax on private forest lands voluntarily placed under state supervision, together with a deferred tax on the value of the timber, to be assessed and paid when the timber is cut. A law passed in Connecticut requires the prospective timber grower to pay the present land tax, but exempts the timber and prevents increased land taxes for a period of 50 years or until the timber is cut, when a 10 per cent. product tax is assessed. Forests in which there is timber over 10 years old are taxed on the assessed value of both land and timber, but the owner is protected from increased taxation for a period of 50 years. In New Hampshire municipalities were given permission to purchase and maintain forests under direction of the state forester. Illinois likewise provided for the establishment of forest reserve districts, and Indiana for the formation of forestry associations to acquire and maintain forests. A bounty was provided for planting forest trees in South Dakota. Vermont reduced its taxation on established reforested areas to the land value alone, in no case to exceed $3 an acre. In Nebraska a forestry commission was established to study the reforestation of the state school lands. North Dakota provided for a state forester, the establishment of state nurseries, and the distribution of forest trees and seeds. Oregon withdrew its state forest lands from sale for 50 years. The Province of Quebec has inaugurated a system of forest township reserves. All of the non-agricultural and waste lands in a given township are grouped into reserves, placed under the control of wardens, and given silvicultural treatment. Regulated cuttings of not over one-twentieth of each reserve may be made by farmers and settlers each year on payment of certain dues. There are now eight such reserves established, covering 255,000 acres.

National Forests.—Special efforts were made by the Federal Government to encourage closer utilization of our national forests. A plan was recently put into force which will enable the people in the vicinity of the forest reserves to get cheap power, as the maximum rate which the power companies may charge is definitely fixed in the permit (see X, *Public Lands*). The use of national forest timber is increasing rapidly. For the year ending June 30, 1913, the forest receipts totaled $2,500,000, of which 35 per cent., as prescribed by law, will go to the benefit of the states in which the forests are situated for their schools and roads. It is estimated that the various states concerned have drawn over $3,000,000 in all from this source since 1906.

The Secretary of Agriculture recently put in force a regulation which will give settlers and other local users a larger voice in national-forest administration. Any associations whose members include a majority of the local residents making use of the national forests may select a committee to meet with the local forest officers, which will be recognized in an advisory capacity in settling questions which may arise between the

Forest Service and the public in the use of the forests.

The various branches of the Department of Agriculture are coöperating in a classification of soils in the national forests, with the ultimate aim of releasing all lands of more value for agriculture than for forestry. During the year a number of areas were recommended for elimination by the Forest Service, and restored to entry and settlement by Presidential proclamations. The total acreage purchased for the Appalachian and White Mountains reserves under the Weeks law now aggregate about 500,000 acres.

Forest Associations.—The Fifth National Conservation Congress met in Washington, D. C., on Nov. 18-20. The American Forestry Association held its annual meeting at the same time and place. Considerable time was devoted in the Conservation Congress to reports on the coöperative investigations of the two organizations into such questions as forest taxation, forest education, state legislation, forest protection, and in promoting action throughout the country in the interest of forestry education and intelligent practice.

Forestry Education. — The New York State legislature appropriated $250,000 for a building for the new New York State College of Forestry at Syracuse, and also $100,000 for a building for the forest department of Cornell University. The Forestry Branch of the Dominion of Canada has followed the example of the U. S. Forest Service in establishing a Wood Products Laboratory, in coöperation with the McGill University.

Export Trade. — During the fiscal year ending June 30, 1913, the United States exported forest products of all kinds to the value of $115,704,777, as compared with $96,782,186 in 1912, and imported $61,824,088 worth, as compared with $52,502,131 in 1912. Trees to the number of 3,779,041 were imported from abroad in 1913, to be used largely for ornamental purposes. Tree seed was imported to the amount of 15,040 lbs., largely for the purpose of reforesting land.

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FISHERIES

Ethel M. Smith

Federal Legislation.—Almost all existing fishery laws are state or local laws. The tendency toward protection of interstate and international fishery resources by Federal regulation has been the conspicuous trend of fishery affairs in 1913.

The proposition for Federal control is of some years standing for the Columbia River, where conflicting laws in Washington and Oregon endangered the salmon fisheries; for the Great Lakes, where local issues and differences among the boundary states on the one side and the Canadian provinces on the other have largely neutralized the effects of existing laws; and in the Potomac

River, where the shad fisheries have suffered by conflicting regulations on the Maryland and Virginia shores. Within the past few months, however, the proposition has again taken definite form in a bill introduced in Congress, providing that the capture of migratory fishes in interstate waters shall be regulated by the Department of Commerce, and in a renewed bill providing for international control of the fisheries in all boundary waters between the United States and Canada.

The fisheries of Alaska have been under Federal control ever since the territory was acquired. This has enabled the Secretary of Commerce in recent years to prohibit fishing in a number of streams, as well as to inspect the fishery methods, the cannery plants and other packing establishments throughout the territory. During 1912 a comprehensive new fisheries law was drafted for presentation to Congress. Important controversial points disposed of were the licensing of fishing gear, the tax upon canned salmon, and the rebate allowed for canneries which conduct salmon hatcheries.

To restrict the manufacture of fertilizer and oil from fishes to the use of menhaden, shark, dogfish, skates, rays, sea robins, and sculpins, is the purpose of a recent bill which prohibits the interstate transportation of any such products from other fish than these. The law of 1906, designed to restrict machine diving for sponges off the Florida coast in the interests of the sponge fisheries, has proved unenforceable to any practical effect. A new bill, drafted by the Bureau of Fisheries with a view to overcoming these defects, was passed by the Senate at the regular session of 1912-13, but encountered opposition in the House, which has deferred action pending further hearings on the subject.

More than 60 bills for the establishment of Federal fish hatcheries are before the Sixty-third Congress, designating sites in 30 different states, Alaska and Hawaii. Such measures are not recommended by the Department of Commerce without provision allowing choice of site to be made by the Department, thus insuring proper conditions as determined by special requirements of water supply, etc., nor without the further provision that the Department may at any time discontinue fish-cultural work in any given state if state laws and state fishery authorities do not facilitate and support the Federal Government's efforts.

State Legislation.—Legislation providing a leasing system for shellfish grounds, which is inseparable from profitable shellfish culture, is a subject of current discussion in the legislatures of nearly all the shellfish producing states. Massachusetts, which has no very extensive oyster resources, is considering the recommendation of the State Fish and Game Commissioner that the state lease all the land available for growing scallops, clams, quahaugs, and oysters, of which land there is at least 110,000 acres. Connecticut and Rhode Island, with the most highly developed systems of oyster culture in the United States, are debating the taxation of the oyster crop. Maryland, with her output of oysters still smaller in 1912 than before, her natural beds having consistently diminished in yield, has entered upon the administration of a new leasing law, under which thus far 700 applications have been filed, covering an aggregate of 40,000 acres, of which 15,000 have been surveyed and taken up. Mississippi and Alabama, upon the basis of recent surveys of the resources in Mississippi Sound, are likewise adopting legislation encouraging and protecting the planter. Preparatory to revision of the laws, a second survey of Matagorda Bay, Texas, was completed in the Spring, and Florida has become alive to the possibilities of oyster culture on her coasts and is asking the Federal Government to assist in their development by making a similar survey.

Oyster Fisheries.—This industry underwent a serious business depression in 1913, due to alarm on the part of the public concerning the contamination of oyster beds. Various known cases of pollution and seizure of the goods by the Federal pure food authorities gave legitimate basis for this alarm, notwithstanding the fact that the chief danger is eliminated

when the oysters are cooked. Prompt action by the state or local authorities in many instances and a very general spirit of coöperation on the part of the oyster dealers themselves have done much to remedy conditions and reëstablish the oyster in public favor.

Statistics of the oyster fisheries of Maryland and Virginia as shown by a Federal canvass for 1912, which was completed in 1913, show 5,510,421 bu., worth $2,127,759, from Maryland, and 6,206,098 bu., worth $2,286,340, from Virginia. In Maryland the 280,010 bu. which were taken from cultivated grounds sold for $149,069, or 53 cents a bushel, while the 5,230,411 bu. from public, uncultivated grounds, brought a price of 38 cents per bushel, with a total value of $1,978,690. In Virginia 2,257,873 bu. were taken from cultivated grounds, bringing $1,128,830, or 50 cents a bushel, and 3,948,225 bu. from the public grounds brought $1,157,510, or 29 cents per bushel.

The Federal canvass of the Pacific Coast oyster industry was also completed this year, covering the calendar year 1912. Of the total output of 213,579 bu., with a value of $676,243, the quantity of eastern oysters was 107,580 bu., worth $434,295.

New England Vessel Fisheries.—The New England vessel fisheries, monthly and annual statistics of which are published by the U. S. Bureau of Fisheries, landed 182,704,059 lbs. of fresh and salted fish at Boston and Gloucester during the calendar year 1912. This quantity represented 7,649 trips, or fares, and brought a price of $4,779,259, the chief products being cod, cusk, hake, pollock, haddock, and mackerel. From January to August, inclusive, in 1913, the yield of these fisheries amounted to 104,739,862 lbs., worth $3,275,447, a decrease as compared with the same eight months in 1912, when the returns showed 116,795,931 lbs., with a value of $2,976,407.

Two events of importance to the New England fisheries are the continued growth of the otter-trawl fishery, for which three new vessels were fitted out this year, and the introduction of gill-net fishing by Great Lakes methods. The criticism of the trawl-net was focused in a bill before Congress to prohibit it, but a substitute measure was adopted, providing for expert investigation by the Federal Government to determine the merits of the question. Meantime, with the new vessels that have been fitted out, the trawl fishery this year has 10 vessels in all.

Fishermen from the Great Lakes introduced at Gloucester in 1911 their method of gill-net fishing, hauling their nets for cod, haddock, pollock, and other ground fishes by power boats instead of from dories in the old Gloucester mode. In 1912 the number of vessels in this fishery increased from the 20 of 1911 to 38, though not without objection on the part of the native Gloucester fishermen.

The purse-seine fishery for salmon off Cape Flattery, which was a development of importance in 1912, increased its number of boats to 170 in 1913, but, according to trade reports, did not increase its catch.

Alaska Fisheries and Furs.—According to the annual canvass of the Bureau of Fisheries, the fisheries of Alaska in 1912 represented an investment of $33,759,295, with 24,263 persons engaged, and a product worth $18,877,480. Of this value $16,295,490 represented canned salmon, of which there were 4,056,021 cases of 48 one-pound cans.

The furs taken in Alaska in 1912 were valued at $794,157, of which $141,290 was the gross value of sealskins. On the Pribilof Islands, where the skins are taken under government regulation and by government agents, the number was only 3,764, the killing being restricted to male seals two and three years old. These skins were shipped to London as usual, and sold at auction, bringing a price of $140,431. A new law, reducing the number of seals killed to the needs of the native inhabitants of the islands for food, went into effect for 1913, and only 2,296 skins were taken. Of these, 400 were reserved for purposes of the Department of Commerce, and the remaining 1,896, with the 405 blue fox skins and the 31 white fox skins from the same islands, were sold for the first time in the American market, at St. Louis.

The sealskins brought prices ranging from $52 to $15 each; the average price of the blue fox skins was $48.20, and of white fox skins $14.77.

The cessation of pelagic sealing in Bering Sea in 1912, the first year of operation of the four-nation treaty ratified in 1911 (*A. Y. B.*, 1911, p. 67), brought an immediate response in numbers of the seal herd, a census of which in 1912 showed 215,940 seals of all classes on the islands at the end of the season, an estimated gain of 30,000. The count of 1913 showed a still further increase.

United States Bureau of Fisheries.—The fish-cultural work of the Bureau of Fisheries in the fiscal year ending June 30, 1913, yielded a total output of 3,421,591,295 fry of all species, 19,726,114 fingerlings, yearlings and other young fish, and furnished 422,275,873 fish eggs, most of the latter being consigned to state hatcheries. These figures represent an increase of nearly five per cent. over the output for 1912, and 95 per cent. of the total was commercial fishes. Two new hatcheries in the Puget Sound region were in operation for the first time, and proved efficient aid in the salmon work. Three others are in course of construction, in Kentucky, South Carolina, and Wyoming.

The effort to acclimatize the lobster on the Pacific Coast was continued by arrangements for the transfer of several carloads from Maine to points in Puget Sound, and lobsters were also transplanted from New England to New Jersey waters, to test the possibility of increasing their numbers under certain new conditions in that region. Humpback salmon from the Pacific Coast are being planted in New England coastal streams, the habits of this species being such that it seems suited to this region, although attempts to acclimatize the chinook in the same waters have failed.

The scientific staff of the Bureau of Fisheries in 1913 conducted a second survey of the oyster grounds of Matagorda Bay, Texas, in response to request of the fishery authorities of that state; continued the propagation of fresh-water mussels and planted over 150,000,000 of the larvæ in the Mississippi River or its tributaries; extended their research into the causes and phenomena of pearl formation; examined conditions in the Truckee River with reference to the destruction of fish by diversion of water for irrigation purposes, and in lakes of Washington and Idaho with reference to their physical and biological characteristics in relation to fish life; and discovered an extensive area of giant scallops off the middle Atlantic Coast, apparently affording an important commercial resource.

The Secretary of Commerce has decided to offer various islands along the Alaskan coast for lease for fox farms, and to sell live foxes from the Pribilof Islands for breeding stock.

STATISTICS OF AGRICULTURE

WORLD'S PRODUCTION OF PRINCIPAL CROPS, 1899–1912

(*Yearbook of the Department of Agriculture*)

	1899	1904	1909	1911	1912
Barley (bu.)	841,970,000	1,167,053,000	1,458,263,000	1,375,411,000	1,457,807,000
Corn (bu.)	2,724,100,000	3,109,252,000	3,563,226,000	3,460,820,000	4,054,838,000[1]
Cotton (bales)	.....	21,005,175	17,756,339	23,421,055	.....
Flaxseed (bu.)	.....	107,743,000	100,943,000	84,524,000	98,622,000
Hops (lbs.)	250,833,060	.....	128,173,048	160,330,072	210,158,000[2]
Oats (bu.)	3,212,689,000	3,536,179,000	4,312,882,000	3,785,806,000	4,585,231,000
Potatoes (bu.)	.....	4,298,049,000	5,595,567,000	4,748,711,000	.....
Rice (lbs.)	74,074,369,193	115,735,800,000	179,845,558,000	174,404,983,000	.....
Rye (bu.)	1,612,161,000	1,740,406,000	1,747,123,000	1,578,547,000	1,901,181,000
Sugar(longtons)	7,973,122	10,318,828	14,289,100	16,470,100	15,507,800[2]
Tobacco (lbs.)	.....	2,146,641,000	2,742,500,000	2,626,985,000	.....
Wheat (bu.)	2,725,407,000	3,162,340,000	3,581,519,000	3,540,717,000	3,759,533,000

[1] Total of countries whence returns have been received in 1912.

[2] Preliminary.

WORLD'S PRODUCTION OF PRINCIPAL CROPS, BY COUNTRIES, 1899–1912

(*Yearbook of the Department of Agriculture*)

	1899 Production (000 omitted)	1904 Production (000 omitted)	1909 (000 omitted)		1911 (000 omitted)		1912 (000 omitted)	
			Acres	Production	Acres	Production	Acres	Production
BARLEY (bu.):								
Algeria	20,000	37,106	3,442	31,511	3,320	47,588	3,430	32,887
Austria-Hungary	116,672	119,451	6,014	153,582	5,785	149,094	5,393	149,120
Canada	23,797	43,872	1,864	55,398	1,404	40,631	1,415	44,014
France	47,782	38,827	1,814	46,144	1,907	47,631	1,856	50,646
Germany	139,241	135,409	4,068	160,551	3,916	145,132	3,928	159,924
Japan	44,000	80,000	3,136	87,219	3,173	86,518	3,132	90,609
Russia (European)	226,909	343,981	26,178	464,734	28,089	404,193	28,873	451,861
Spain	.....	60,000	3,480	81,579	3,567	86,792	3,298	59,994
United Kingdom	76,911	64,474	1,827	71,116	1,756	59,694	1,813	60,164
United States	73,382	139,749	7,698	173,321	7,627	160,240	7,530	223,824
CORN (bu.):								
Argentina	66,185	175,189	7,348	177,155	7,945	27,675	8,455	295,849
Austria-Hungary	145,244	89,757	8,425	210,241	8,372	181,698	7,831	229,600
Bulgaria	20,462	12,758	1,501	20,472	1,561	30,500	.....	.....
Canada	22,356	20,242	352	19,263	316	18,773	292	16,570
Egypt	30,000	30,000	1,910	65,000	1,902	67,903	.....	69,913
France	25,548	19,482	1,222	26,075	1,049	16,860	.....	.....
Italy	88,536	90,546	4,005	99,289	4,066	93,680	3,937	98,668
Mexico	93,438	83,131	.....	170,000	.....	190,000	.....	.....
Roumania	27,721	19,598	5,247	70,138	5,152	110,712	5,135	104,612
Russia	30,912	25,920	3,784	39,598	3,936	81,919	4,086	79,964
Servia	25,938	9,498	1,145	34,453	1,443	26,531	.....	.....
South Africa	2,858	8,784	.....	20,000	.....	20,000	.....	.....
Spain	25,629	21,255	1,149	26,433	1,145	28,730	1,149	25,069
United States	2,078,144	2,467,481	98,383	2,552,190	105,825	2,531,488	107,083	3,124,746
COTTON (bales):								
Brazil	.....	220	.....	265	.....	270	.....	.....
China	.....	1,200	.....	1,200	.....	1,200	.....	.....
Egypt	.....	1,305	.....	1,045	.....	1,514	.....	.....
India	.....	3,727	.....	4,123	.....	3,284	.....	.....
Mexico	.....	253	.....	200	.....	200	.....	.....
Persia	.....	71	.....	128	.....	123	.....	.....
Peru	.....	45	.....	44	.....	76	.....	.....
Russia (Asiatic)	.....	504	.....	418	.....	690	.....	.....
Turkey (Asiatic)	.....	66	.....	131	.....	131	.....	.....
United States	.....	13,439	30,938	10,005	36,045	15,693	.....	.....
HOPS (lbs.)								
Australasia	1,299	.....	.....	2,206	.....	2,589	.....	2,589
Austria-Hungary	34,313	.....	.....	20,577	.....	21,189	.....	47,632
Belgium	12,655	.....	.....	3,861	.....	5,700	.....	7,000
France	4,598	.....	.....	5,029	.....	4,950	.....	6,820
Germany	73,295	.....	.....	13,356	.....	23,430	.....	45,364
Russia	7,390	.....	.....	8,267	.....	13,903	.....	8,800
United Kingdom	74,079	.....	.....	24,022	.....	36,739	.....	41,825
United States	43,200	.....	.....	50,697	.....	51,672	.....	50,000
OATS (bu.):								
Argentina	.....	.....	1,564	31,984	1,980	47,192	2,547	69,169
Austria-Hungary	192,964	177,523	7,723	251,277	7,770	236,646	.....	231,217
Canada	129,753	202,827	9,302	353,466	9,233	348,586	9,216	361,733
Denmark	37,500	40,000	.....	42,170	.....	41,188	.....	42,400
France	273,305	261,264	9,702	331,183	9,863	303,328	9,877	328,601
Germany	474,179	477,852	10,649	628,712	10,693	530,764	10,841	586,987
Russia	995,305	1,081,034	46,268	1,145,387	47,582	859,180	45,784	1,067,584
Sweden	53,698	50,117	1,194	69,292	1,951	63,462	.....	75,900
United Kingdom	169,661	191,565	4,017	184,370	4,050	177,170	4,075	180,215
United States	796,178	894,596	35,159	1,007,129	37,763	922,208	37,917	1,418,337
POTATOES (bu.):								
Austria-Hungary	.....	639,407	.....	682,927	.....	620,263	.....	.....
Belgium	.....	82,846	.....	90,358	.....	104,718	.....	.....
Canada	.....	74,746	.....	99,085	.....	66,023	.....	.....
France	.....	375,000	.....	613,041	.....	423,573	.....	.....
Germany	.....	1,702,803	.....	1,716,143	.....	1,263,024	.....	.....
Italy	.....	29,000	.....	63,273	.....	62,140	.....	.....
Netherlands	.....	96,695	.....	97,275	.....	103,468	.....	.....
Russia	.....	1,082,723	.....	1,204,528	.....	1,176,055	.....	.....
Spain	.....	84,000	.....	98,860	.....	93,089	.....	.....
Sweden	.....	78,020	.....	61,981	.....	52,669	.....	.....
United Kingdom	.....	265,713	.....	256,752	.....	280,753	.....	.....
United States	.....	278,985	.....	389,195	3,619	292,737	3,711	420,647

WORLD'S PRODUCTION OF PRINCIPAL CORPS, BY COUNTRIES—*Continued*

	1899 Production (000 omitted)	1904 Production (000 omitted)	1909 (000 omitted)		1911 (000 omitted)		1912 (000 omitted)	
			Acres	Production	Acres	Production	Acres	Production
RICE (lbs.):								
Egypt		141,000		653,458		523,438		
Formosa		2,598,100		1,446,000		1,329,000		
French Indo China		5,000,000		5,000,000		5,000,000		
India	58,905,100	72,325,000		86,712,000		81,298,000		
Italy	1,122,368	760,500		647,000		652,153		
Japan	13,481,647	18,658,700		16,375,000		16,240,000		
Java and Madura		6,431,000		7,566,000		7,566,000		
Korea		3,200,000		3,200,000		3,200,000		
Madagascar				953,000		953,000		
Philippine Islands		544,000		1,018,000		1,201,000		
Siam		6,824,000		6,824,000		6,824,000		
Spain	385,000	394,600		282,065		287,303		
United States	136,990	619,400	720	702,709	696	662,876	722	1,127,430
RYE (bu.):								
Austria-Hungary	125,315	138,009	7,820	164,898	7,891	158,675		176,743
Belgium	22,000	22,000	636	23,154		23,089		22,500
Bulgaria	10,000	13,000	498	6,906	545	12,000		10.000
Canada	2,823	2,995	91	1,715	153	2,669	136	2,594
Denmark	18,000	18,000		18,922		19,286		18,500
Finland				12,085		10,153		12,344
France	68,255	53,343	3,031	54,934	2,902	45,894	2,994	50,936
Germany	341,551	396,075	15,149	446,763	15,161	427,776	15,488	456,600
Netherlands	11,500	14,000	553	17,652	556	16,110	558	16,000
Russia	911,631	1,008,381	71,983	896,833	73,191	762,051	72,932	1,043,982
Spain	15,000	19,000	2,058	34,901	1,987	28,897	1,944	18,867
Sweden	21,436	20,960	998	25,728	988	23,825		23,323
United States	23,962	27,242	2,196	29,520	2,127	33,119	2,117	35,664
SUGAR, CANE (long tons):								
Australia	191	113		165		229		190
Brazil	151	197		244		282		231
Cuba	345	1,040		1,521		1,460		1,866
India	10	15		1,872		2,217		2,390
Java	689	885		1,222		1,230		1,413
Mauritius	186	215		192		219		166
United States	299	673		1,095		1,135		1,166
BEET (long tons):								
Austria-Hungary				1,365		1,496		1,124
Belgium	244	203		243		267		231
France	830	804		701		630		448
Germany	1,721	1,927		2,046		2,548		1,474
Netherlands				194		196		270
Russia	776	1,206		1,109		1,882		1,808
United States	32	208		380		456		535
TOBACCO (lb.):								
Austria-Hungary		111,815		190,274		183,372		
Brazil		52,832		64,654		40,761		
Cuba		42,421		59,323		66,930		
Dutch East Indies		90,125		134,100		167,395		
Germany		75,797		62,120		64,385		
India		450,000		450,000		450,000		
Japan		106,075		91,850		93,787		
Philippine Islands		33,100		40,258		56,257		
Russia		204,298		207,451		195,002		
Santo Domingo				30,000		42,000		
Turkey (Europ.)				49,177		49,177		
United States		665,461		1,065,765	1,012	915,109	1,225	962,855
WHEAT (bus.):								
Argentina	92,167	120,598	14,981	156,162	15,451	145,981	17,042	166,190
Austria-Hungary	191,842	203,998	11,945	186,085	12,358	252,575		257,347
Australasia	56,212	84,627	5,514	73,612	7,694	106,644	7,643	81,384
Canada	59,960	76,427	7,750	166,744	10,377	215,918	9,758	199,236
France	366,079	296,606	16,299	356,193	15,896	315,126	16,198	334,871
Germany	141,369	139,803	4,525	137,999	4,878	149,411	4,758	160,224
India	232,585	357,162	26,235	285,189	30,564	374,845	30,517	366,370
Italy	137,912	150,400	11,635	190,378	11,741	192,395	11,750	165,720
Roumania	26,064	53,738	4,173	56,751	4,769	93,724	5,113	88,924
Russia	487,234	706,706	65,414	783,270	73,831	517,835	71,300	727,011
Spain	88,000	110,000	9,347	144,105	9,705	148,495	9,624	109,783
United Kingdom	69,325	39,083	1,867	65,188	1,951	66,289	1,970	59,409
United States	547,304	552,400	44,261	683,530	49,543	621,338	45,814	730,267

PRODUCTION OF PRINCIPAL CROPS IN THE UNITED STATES, 1899–1913

(*Yearbook of the Department of Agriculture*)

(000 omitted)

	1899 (census)	1904	1909 (census)	1911	1912	1913[1]
TOTAL:						
Barley (bu.)	119,635	139,749	173,321	160,240	223,824	178,189
Buckwheat (bu.)	11,234	15,008	14,849	17,549	19,249	13,833
Corn (bu.)	2,666,324	2,467,481	2,552,190	2,531,488	3,124,746	2,446,988
Cotton (lbs.)	4,467,096	6,426,697	4,783,220	7,506,430	6,612,335	6,838,500
Flaxseed (bu.)	19,979	23,401	19,513	19,370	28,073	17,853
Hay (tons)	57,002	60,696	64,938	47,444	72,691	64,116
Hops (lbs.)	49,209	49,358	50,697	51,672	50,000[2]	.....
Oats (bu.)	943,389	894,596	1,007,129	922,298	1,418,337	1,121,768
Potatoes (bu.)	273,318	332,830	389,195	292,737	420,647	331,525
Rice (bu.)	.....	21,096	24,368	22,934	25,054	25,744
Rye (bu.)	25,569	27,242	29,520	33,119	35,664	41,381
Sugar (long tons)	680	988	1,586	1,737	1,885	.....
Tobacco (lbs.)	868,113	660,461	1,055,765	905,109	962,855	953,734
Wheat (bu.)	658,534	552,400	683,350	621,338	730,267	763,380
AVERAGE PER ACRE:						
Barley (bu.)	26.8	27.2	22.5	21.0	29.7	23.8
Buckwheat (bu.)	13.9	18.9	16.9	21.1	22.9	17.2
Corn (bu.)	28.1	26.8	25.9	23.9	29.2	23.1
Cotton (lbs.)	184.1	204.9	154.3	207.7	193.2	181.9
Flaxseed (bu.)	9.5	10.3	9.4	7.0	9.8	7.8
Hay (tons)	1.09	1.52	1.42	1.1	1.47	1.31
Oats (bu.)	31.9	32.1	28.4	24.4	37.4	29.2
Potatoes (bu.)	93.0	110.4	106.1	80.9	113.4	90.4
Rice (bu.)	.....	31.9	33.8	32.9	34.7	31.1
Rye (bu.)	12.4	15.2	13.4	15.6	16.8	16.2
Tobacco (lbs.)	788.5	819.0	815.3	893.7	785.5	784.3
Wheat (bu.)	12.5	12.5	15.4	12.5	15.9	15.2

[1] Final estimate issued December 15. [2] Unofficial estimate.

PRODUCTION OF PRINCIPAL CROPS IN THE UNITED STATES, BY STATES, 1899–1912

(*Yearbook of the Department of Agriculture*)

	1899		1904		1909		1911		1912	
	Av. per Acre	Total (000 omitted)	Av. per Acre	Total (000 omitted)	Av. per Acre	Total (000 omitted)	Av. per Acre	Total (000 omitted)	Av. per Acre	Total (000 omitted)
BARLEY (bu.):										
California	26	22,239	22.7	28,091	26.5	31,270	28.0	40,600	30.0	41,760
Idaho	35	405	37.4	1,707	40.0	2,480	42.0	5,964	43.5	6,916
Iowa	26	12,011	27.8	13,552	22.0	10,890	21.9	10,950	31.0	14,570
Minnesota	25	8,144	28.4	32,123	23.6	31,600	19.0	28,025	28.2	42,018
N. Dakota	24	5,909	28.1	17,518	21.0	20,727	19.5	20,475	29.9	35,162
S. Dakota	23	2,410	28.0	9,787	19.5	19,910	5.4	5,508	26.0	23,062
Washington	35	1,410	34.8	5,824	39.5	7,189	37.0	6,512	43.0	7,869
Wisconsin	30	7,670	30.0	14,941	28.0	24,248	25.5	20,910	29.4	24,843
CORN (bu.):										
Alabama	12.0	33,015	15.0	41,877	13.5	30,696	18.0	54,000	17.2	54,180
Georgia	10.0	32,494	11.9	47,234	13.9	39,375	16.0	59,072	13.8	53,958
Illinois	36.0	247,150	36.5	344,133	36.9	390,219	33.0	334,950	40.0	426,320
Indiana	38.0	141,852	31.5	143,396	40.0	195,496	36.0	174,600	40.3	199,364
Iowa	31.0	242,249	32.6	303,039	31.5	341,750	31.0	305,350	43.0	432,021
Kansas	27.0	237,621	20.9	134,609	19.9	154,652	14.5	126,150	23.0	174,225
Kentucky	21.0	55,392	26.9	86,815	29.0	83,348	26.0	93,600	30.4	109,440
Michigan	25.0	26,476	28.6	36,990	35.4	52,907	33.0	55,770	34.0	55,250
Minnesota	33.0	31,171	26.9	41,809	34.8	67,897	33.7	74,140	34.5	78,177
Mississippi	16.0	39,043	19.1	39,709	14.5	28,429	19.0	54,150	18.3	56,840
Missouri	26.0	162,915	26.2	151,522	26.4	191,427	26.0	192,400	32.0	243,904
Nebraska	28.0	224,373	32.8	260,942	24.8	180,133	21.0	155,925	24.0	182,616
Ohio	36.0	99,048	32.5	99,628	39.5	157,513	38.6	150,540	42.8	174,410
Penns'lv'nia	32.0	40,255	34.0	48,535	32.0	41,494	44.5	63,858	42.5	61,582
S. Dakota	26.0	30,017	28.1	43,855	31.7	55,559	22.0	50,820	30.6	76,347
Tennessee	20.0	59,997	25.0	80,890	22.0	67,682	26.8	91,120	26.5	88,298
Texas	18.0	81,151	22.6	136,702	15.0	75,499	9.5	69,350	21.0	153,300
Wisconsin	35.0	41,686	29.7	45,119	33.0	49,163	36.3	58,080	35.7	58,262

PRODUCTION OF PRINCIPAL CROPS IN THE UNITED STATES, BY STATES, 1899–1912—*Continued*

	1899		1904		1909		1911		1912	
	Av. per Acre	Total (000 omitted)	Av. per Acre	Total (000 omitted)	Av. per Acre	Total (000 omitted)	Av. per Acre	Total (000 omitted)	Av. per Acre	Total (000 omitted)
COTTON (bales):										
Alabama	.39	1,176	.36	1,448	.28	1,024	.40	1,716	.....	.....
Georgia	.39	1,378	.41	1,887	.36	1,804	.48	2,768	.....	.....
Mississippi	.43	1,247	.44	1,798	.31	1,083	.34	1,203	.....	.....
N. Carolina	.48	629	.46	703	.42	600	.63	1,075	.....	.....
Oklahoma	.50	109	.49	335	.29	544	.32	1,022	.....	.....
S. Carolina	.44	1,035	.43	1,151	.42	1,099	.56	1,648	.....	.....
Texas	.48	3,363	.36	3,145	.25	2,522	.37	4,256	.....	.....
HAY (tons):										
Iowa	1.34	5,025	1.62	5,074	1.64	5,983	.80	2,592	1.40	4,952
Michigan	1.22	1,650	1.25	2,658	1.30	3,403	1.16	2,797	1.33	3,185
New York	1.04	4,530	1.36	6,480	1.05	5,002	1.02	4,858	1.25	5,900
Ohio	1.30	2,133	1.43	3,880	1.43	4,033	.98	2,505	1.36	4,026
Penns'lv'nia	1.20	3,068	1.45	4,499	1.20	3,742	1.00	3,148	1.43	4,537
Wisconsin	1.47	1,946	1.67	2,959	1.53	3,625	1.20	2,495	1.60	3,600
OATS (bu.):										
Illinois	38.0	127,278	32.0	117,341	36.6	150,386	28.8	121,536	43.3	182,726
Iowa	33.0	126,985	32.0	122,323	27.0	128,198	25.5	126,225	44.2	217,818
Ohio	36.0	32,945	40.9	49,733	32.5	57,591	32.1	54,570	44.0	93,280
Minnesota	32.0	52,688	39.2	85,178	33.0	93,898	22.8	67,214	41.7	122,932
N. Dakota	30.0	17,987	37.4	31,010	32.0	65,887	23.5	51,230	41.4	95,220
Wisconsin	36.0	67,687	35.0	86,734	35.0	71,336	29.8	67,050	37.3	84,746
POTATOES (bu.):										
Iowa	100.0	19,847	136.0	22,354	89.0	12,905	74.0	12,876	109.0	18,966
Maine	139.0	6,514	215.0	19,657	225.0	29,250	180.0	21,240	198.0	23,166
Michigan	66.0	11,430	121.0	31,806	105.0	36,540	94.0	31,020	105.0	36,750
Minnesota	96.0	10,888	102.0	13,995	115.0	18,400	115.0	25,875	135.0	33,075
New York	88.0	28,707	93.0	41,129	120.0	52,560	74.0	27,750	106.0	38,160
Ohio	71.0	11,505	98.0	16,029	93.0	16,926	65.0	12,350	112.0	20,832
Penns'lv'nia	85.0	15,243	106.0	27,174	78.0	23,790	56.0	15,120	109.0	28,885
Wisconsin	103.0	16,102	126.0	31,499	102.0	26,724	116.0	32,480	120.0	34,920
RICE (bu.):										
Arkansas	.....	.....	.....	.....	40.0	1,120	39.0	2,792	37.5	3,405
Louisiana	.....	.....	30.4	11,445	33.8	12,675	31.5	11,693	33.5	11,812
Texas	.....	.....	35.5	8,314	34.0	9,894	34.3	8,174	35.5	9,429
RYE (bu.):										
Indiana	13.0	464	14.6	478	16.5	940	13.7	1,000	14.5	928
Michigan	14.0	1,097	13.2	1,752	15.5	5,425	14.6	5,840	13.3	4,921
Minnesota	18.0	1,112	17.7	1,648	19.0	2,280	18.7	4,488	23.0	6,026
New Jersey	15.0	1,000	17.5	1,224	16.3	1,288	16.4	1,181	17.5	1,260
New York	16.0	3,633	14.8	2,177	17.0	2,720	16.7	2,254	16.5	2,112
Penns'lv'nia	15.0	3,936	15.5	5,367	15.3	5,508	15.1	4,304	17.5	4,935
Wisconsin	15.0	3,073	16.2	4,905	16.3	4,727	17.0	6,035	18.3	6,240
TOBACCO (lbs.):										
Connecticut	.....	.....	1,685	21,407	1,650	22,110	1,625	27,625	1,700	29,750
Indiana	.....	.....	691	4,314	950	19,000	910	20,020	800	14,960
Kentucky	.....	.....	827	229,417	835	350,700	880	303,600	780	343,980
Maryland	.....	.....	621	19,913	710	17,750	735	19,110	660	17,160
N. Carolina	.....	.....	685	98,618	600	144,000	710	99,400	620	110,980
Ohio	.....	.....	849	50,793	925	83,250	925	81,400	920	79,304
Penns'lv'nia	.....	.....	1,289	18,635	985	30,732	1,420	65,320	1,450	64,090
S. Carolina	.....	.....	703	8,185	800	32,000	810	11,016	700	24,500
Tennessee	.....	.....	730	34,823	730	53,290	810	62,370	660	72,600
Virginia	.....	.....	725	96,487	775	120,125	800	128,000	600	112,200
W. Virginia	.....	.....	710	2,901	875	12,600	750	11,250	760	12,008
Wisconsin	.....	.....	1,282	52,473	1,180	37,170	1,250	51,250	1,290	54,438
WHEAT (bu.):										
Illinois	10.0	12,665	13.8	21,542	17.4	37,831	16.0	42,000	8.3	9,819
Indiana	9.8	25,361	9.2	12,525	15.3	33,936	14.7	34,354	8.0	10,080
Kansas	9.8	36,468	12.4	65,019	14.4	77,564	10.7	51,387	15.5	92,290
Michigan	8.4	13,335	9.8	6,873	18.8	16,026	18.0	18,450	10.0	7,000
Minnesota	13.4	68,223	12.8	68,344	16.8	57,094	10.1	43,935	15.5	67,038
Missouri	9.9	11,398	17.7	27,163	14.7	29,837	15.7	36,110	12.5	23,750
Nebraska	10.3	20,791	13.6	31,453	18.8	47,686	13.4	41,574	17.6	55,052
N. Dakota	12.8	51,758	11.8	53,892	13.7	116,782	8.0	73,200	18.0	143,820
Ohio	14.2	39,998	11.5	17,563	15.9	30,664	16.0	36,240	8.0	9,760
Penns'lv'nia	13.6	20,472	14.1	21,857	17.0	21,564	13.5	17,402	18.0	22,320
Washington	22.7	21,710	22.2	32,140	23.2	40,920	22.7	50,661	23.5	53,728

IMPORTS AND EXPORTS OF IMPORTANT AGRICULTURAL PRODUCTS, 1899–1913

(*Yearbook of the Department of Agriculture*)

(000 omitted)

	1899	1904	1909	1911	1912	1913
IMPORTS						
Total, excluding Forest Products	$355,514	$461,434	$638,612	$680,204	$783,457	$815,138
Animal matter:						
Cattle	2,320	310	1,999	2,953	4,805	6,640
Horses	551	1,460	2,007	2,692	1,923	2,125
Sheep	1,200	815	502	377	157	89
Other animals including fowls	265	543	528	828	694	728
Butter	3	34	141	247	237	304
Cheese	1,563	3,284	5,866	7,920	8,807	9,185
Cream	.....	.....	.....	1,873	923	1,068
Milk	52	32	23	75	61	135
Eggs	21	61	36	225	147	.....
Silk	32,479	46,100	79,903	74,998	69,541	84,914
Wool	8,322	24,813	45,171	23,228	33,078	35,579
Packing-house products:						
Hides and skins	41,988	52,006	78,487	70,504	102,476	117,386
Meat	467	935	796	1,342	1,358	1,425
Vegetable matter:						
Cocoa	5,360	9,174	15,222	14,552	15,931	17,389
Chocolate	201	426	339	708	658	787
Coffee	55,275	69,551	79,112	90,567	117,816	118,963
Vegetable fibers:						
Cotton	5,013	8,541	13,622	24,776	20,217	22,987
Flax	1,306	2,541	2,542	2,668	3,778	3,950
Hemp	477	869	799	938	1,100	1,484
Jute	2,296	4,104	7,216	4,718	7,183	9,280
Manila	6,211	11,423	7,156	8,622	8,000	12,629
Sisal grass	9,211	15,935	10,215	12,092	11,866	17,803
Fruits	15,586	18,964	22,446	27,017	29,549	28,657
Grain	64	141	2,879	518	3,314	1,339
Wheat flour	4	164	446	625	665	453
Hay	115	914	60	2,544	6,473	1,514
Hops	591	1,374	1,337	2,706	2,231	2,852
Distilled spirits	3,145	4,957	7,676	6,076	6,463	7,374
Malt liquors	1,487	2,313	3,215	3,396	3,279	3,290
Wines	6,590	9,391	12,276	8,531	9,591	10,078
Nursery stock	768	1,496	1,946	2,755	2,999	.....
Nuts	2,727	5,471	8,664	14,498	15,828	.....
Oils, vegetable	5,300	10,225	17,554	29,715	26,834	38,112
Rice, rice meal, etc	3,930	3,073	4,698	4,124	4,435	5,916
Sago, tapioca, etc	.....	695	1,396	1,590	1,674	2,187
Seeds	1,221	3,587	5,958	29,757	25,641	17,425
Spices	2,782	4,366	5,348	4,946	5,974	6,187
Sugar	94,964	71,915	96,554	96,691	115,515	103,639
Tea	9,675	18,229	18,562	17,613	18,207	17,433
Tobacco	9,900	16,939	25,405	27,865	31,925	35,919
Vegetables	2,178	7,008	12,999	9,293	18,544	11,358
EXPORTS						
Total, excluding Forest Products	792,811	859,160	903,238	1,030,794	1,048,433	1,123,021
Animal matter:						
Cattle	30,516	42,256	18,046	13,163	8,870	1,177
Fowls	(1)	(1)	115	(1)	(1)	(1)
Horses	5,444	3,189	3,386	3,845	4,764	3,960
Mules	516	412	472	1,070	732	733
Sheep	853	1,954	365	636	626	605
Swine	227	53	144	74	159	151
Other live animals	322	111	114	259	294	451
Butter	3,263	1,768	1,268	1,059	1,468	872
Cheese	3,316	2,452	857	1,288	898	441
Milk, condensed	1,049	1,367	1,375	936	1,651	1,432
Eggs	641	396	1,199	1,787	3,395	4,391
Packing-house products:						
Beef, canned	3,503	5,882	1,645	1,254	1,303	857
Beef, cured	2,671	3,281	3,472	3,501	2,832	2,489
Beef, fresh	23,545	26,841	12,698	4,478	1,596	902
Hides and skins	929	3,246	1,271	4,802	3,158	3,449
Lard	42,208	46,347	52,712	52,509	52,090	55,860
Lard compounds	.....	3,581	6,115	7,070	5,183	8,242
Pork, cured	7,917	56,268	54,046	46,864	55,239	5,699
Pork, fresh	2,722	1,669	938	159	297	310

(1) Included in "Other live animals."

IMPORTS AND EXPORTS OF IMPORTANT AGRICULTURAL PRODUCTS—*Continued*

(*Yearbook of the Department of Agriculture*)

(000 omitted)

	1899	1904	1909	1911	1912	1913
EXPORTS—*Continued*						
Vegetable matter:						
Cotton	$210,080	$372,049	$417,390	$585,318	$565,849	$547,357
Fruits	7,757	20,348	16,079	23,893	30,354	36,345
Barley	1,375	6,292	4,672	5,381	1,267	11,411
Buckwheat	846	19	137	.....	.....	1
Corn	68,977	30,071	25,194	35,961	28,957	28,800
Oats	9,787	475	804	832	1,135	13,206
Rye	5,936	440	1,049	2	4	1,260
Wheat	104,269	35,850	68,094	22,040	28,477	89,036
Cornmeal	1,775	1,691	1,549	1,456	1,519	1,444
Oatmeal	1,295	463	516	1,043	376	1,514
Wheat flour	73,093	68,894	51,157	49,386	50,999	53,171
Total grain products	273,999	76,215	160,076	124,262	123,095	211,098
Hops	3,626	2,116	1,271	2,130	4,648	4,764
Distilled spirits	2,080	1,691	1,883	1,885	2,274	2,218
Malt liquors	1,888	854	1,010	1,075	1,161	1,371
Oil cake	14,548	17,069	25,836	19,631	28,228	29,444
Vegetable oils	13,809	12,618	23,098	19,805	26,908	24,044
Seeds	5,079	2,583	5,256	2,475	2,898	3,564
Sugar	440	532	2,785	2,224	3,681	1,681
Tobacco	25,467	29,640	30,902	39,255	43,251	49,353
Vegetables	2,799	2,603	3,760	5,545	6,544	7,353

AVERAGE PRICES OF AGRICULTURAL PRODUCTS, 1899–1913

(*Yearbook of the Department of Agriculture*)

	1899	1904	1909	1911	1912	1913
FARM CROPS:[1]						
Barley (bu.)	$0.40	$0.42	$0.55	$0.86	$0.50	$0.53
Beans (bu.)[2]	.....	1.72–2.20	2.25–2.75	2.05–2.65	2.55–3.10	.....
Buckwheat (bu.)	0.55	0.62	0.69	0.72	0.66	0.75
Corn (bu.)	0.30	0.44	0.59	0.61	0.48	0.69
Cotton (lbs.)	0.071	.....	0.139	0.088	0.119	0.122
Flaxseed (bu.)	.....	0.99	1.52	1.82	1.15	1.20
Hay (tons)	7.27	8.72	10.62	14.29	11.79	12.43
Hops (lbs.)[3]	0.12–0.18	0.32–0.41	0.12–0.39	0.23–0.57	0.22–0.56	.....
Oats (bu.)	0.24	0.31	0.40	0.45	0.31	0.39
Potatoes (bu.)	0.39	0.45	0.54	0.79	0.50	0.68
Rice (bu.)	.....	0.65	0.79	0.79	0.93	0.85
Rye (bu.)	0.51	0.68	0.73	0.83	0.66	0.63
Tobacco (lbs.)	.....	0.081	0.101	0.094	0.108	0.128
Wheat (bu.)	0.58	0.92	0.99	0.88	0.76	0.80
LIVE STOCK:[4]						
Cattle:						
Beef[5]	2.00–7.00	1.70–7.65	2.90–9.50	2.50–9.35	1.75–11.25	.....
Milch cows	29.66	29.21	32.36	39.97	39.39	$45.02
Other cattle	22.79	16.32	17.49	20.54	21.20	26.36
Horses	37.40	67.93	95.64	111.46	105.94	110.77
Mules	44.96	78.88	107.84	125.92	120.51	124.31
Sheep	2.75	2.59	3.43	3.91	3.46	3.94
Swine	4.40	6.15	6.55	9.37	8.00	9.86
LIVE STOCK PRODUCTS:						
Butter (lbs.)[6]	0.16½–0.28	0.17½–0.28	0.25–0.37	0.19½–0.39	0.26–0.41	.....
Eggs (doz.)[7]	0.12½–0.35	0.16–0.47	0.19–0.55	0.17–0.60	0.20½–0.60	.....

[1] Average farm prices Dec. 1. [2] Average wholesale prices at Boston. [3] Average wholesale prices at New York. [4] Prices per head, Jan. 1. [5] Average wholesale prices of inferior to prime beef per 100 lbs. at Chicago. [6] Average wholesale prices of extra creamery butter at New York. [7] Average wholesale prices of average best fresh eggs at New York.

LIVE STOCK IN THE UNITED STATES, 1899–1913

(Yearbook of the Department of Agriculture)

(000 omitted)

	Number Jan. 1, 1900	Number Jan. 1, 1905	Number Jan. 1, 1910	Number Jan. 1, 1912	Number Jan. 1, 1913
MILCH COWS:					
Total, U. S.	16,292	17,572	21,801	20,699	20,497
Illinois	1,021	995	1,232	1,049	1,007
Iowa	1,263	1,335	1,570	1,393	1,337
Michigan	463	556	936	806	798
Minnesota	672	836	1,125	1,107	1,129
Missouri	659	569	925	822	789
New York	1,487	1,721	1,771	1,495	1,465
Ohio	780	790	947	887	869
Pennsylvania	970	1,086	1,140	943	943
Texas	693	838	1,137	1,034	1,034
Wisconsin	1,003	1,095	1,506	1,504	1,504
OTHER CATTLE:					
Total, U. S.	27,610	43,669	47,279	37,260	36,030
California	604	1,122	1,120	1,515	1,454
Illinois	1,303	1,666	1,974	1,266	1,228
Iowa	2,178	3,467	3,611	2,773	2,607
Kansas	2,159	2,682	3,260	1,872	1,778
Minnesota	564	941	1,228	1,151	1,139
Missouri	1,387	1,490	2,165	1,504	1,444
Nebraska	1,521	2,379	3,040	2,002	1,902
Oklahoma	283	1,284	1,637	1,242	1,155
Texas	4,352	8,249	7,131	5,177	5,022
Wisconsin	595	1,148	1,081	1,146	1,135
HORSES:					
Total, U. S.	13,538	17,058	21,040	20,509	20,567
Illinois	983	1,232	1,655	1,497	1,482
Indiana	577	636	847	838	846
Iowa	979	1,144	1,447	1,568	1,568
Kansas	732	880	1,187	1,169	1,099
Missouri	724	809	1,005	1,095	1,084
Nebraska	658	795	1,045	1,059	1,027
Ohio	640	785	977	901	892
Oklahoma	50	354	804	750	758
Texas	1,125	1,277	1,369	1,158	1,181
MULES:					
Total, U. S.	2,086	2,889	4,123	4,362	4,386
Alabama	132	161	253	265	270
Georgia	157	201	248	310	310
Mississippi	164	219	290	277	280
Tennessee	139	163	290	279	276
Texas	260	391	702	703	724
SHEEP:					
Total, U. S.	41,883	45,170	57,216	52,362	51,482
Arizona	1,024	816	1,020	1,510	1,572
California	2,001	2,180	2,372	2,656	2,603
Colorado	2,185	1,458	1,729	1,579	1,737
Idaho	2,658	2,978	4,248	2,951	2,951
Michigan	1,389	1,759	2,151	2,276	2,139
Missouri	597	770	957	1,755	1,650
Montana	3,884	5,638	5,747	5,011	5,111
New Mexico	3,973	2,856	4,729	3,330	3,300
Ohio	2,839	2,601	3,203	3,694	3,435
Oregon	2,446	2,546	2,581	2,592	2,644
Texas	2,416	1,617	1,909	2,032	2,073
Utah	2,370	2,344	3,177	1,990	1,990
Wyoming	2,840	3,267	7,316	4,969	4,472
SWINE:					
Total, U. S.	37,079	47,321	47,782	65,410	61,178
Georgia	.....	1,396	1,647	2,098	1,888
Illinois	.....	3,747	3,772	4,640	4,315
Indiana	.....	2,631	2,578	4,031	3,709
Iowa	.....	7,290	6,485	9,689	8,720
Kansas	.....	1,949	1,942	2,808	2,611
Missouri	.....	3,110	2,714	4,491	4,087
Nebraska	.....	2,888	3,201	4,267	3,798
Ohio	.....	2,701	2,047	3,578	3,399
Texas	.....	2,525	3,205	2,544	2,493
Wisconsin	.....	1,653	1,651	2,051	2,030

AGRICULTURAL STATISTICS FROM CENSUS OF 1910

(Yearbook of the Department of Agriculture)

	Total	Percentage
Land area (acres)	1,903,290,000	.....
Farms (acres)	878,798,000	46.2
Improved (acres)	478,452,000	54.5
Woodland (acres)	190,866,000	21.7
Other unimproved (acres)	209,481,000	23.8
Number of farms	6,361,502	.....
Average area per farm (acres)	138.1	.....
Average area of improved land per farm (acres)	75.2	.....
Farms under 20 acres	.....	13.2
Farms of 20 to 99 acres	.....	44.8
Farms of 100 to 499 acres	.....	39.2
Farms of 500 to 1,000 acres and over	.....	2.8
Value of crops of Continental U. S.	$5,487,000,000	.....
Value of all farm property, and per cent. increase	$40,991,374,000	200.5
Value of land	$28,475,674,000	218.1
Value of buildings	$6,325,452,000	177.8
Value of implements and machinery	$1,265,150,000	168.7
Value of animals, poultry and bees	$4,925,098,000	160.1
Value of all property represented in—		
Lands	.....	69.5
Buildings	.....	15.4
Implements and machinery	.....	3.1
Animals, poultry and bees	.....	12.0
Average value per farm of—		
All property	$6,444	.....
Lands and buildings only	$5,471	.....
Average value of land per acre	$14.96	.....
FARM EXPENSES		
Labor:		
Farms reporting	2,922,288	.....
Per cent. of all farms	.....	45.9
Cash expended	$521,727,000	.....
Rent and board furnished	$129,878,000	.....
Feed:		
Farms reporting	2,368,905	.....
Per cent. of all farms	.....	37.2
Amount expended	$299,839,000	.....
Fertilizer:		
Farms reporting	1,823,032	.....
Per cent. of all farms	.....	28.7
Amount expended	$114,884,000	.....
NATIVITY OF FARM OPERATORS		
Number of farms operated by—		
Native white	4,771,063	.....
Foreign white	669,556	.....
Negro and other non-white	920,883	.....
Percentage of operators who own their farm among—		
Native white	.....	66.3
Foreign white	.....	81.4
Negro and other non-white	.....	26.2

XX. THE MINERAL INDUSTRIES

MINING AND ORE DRESSING

CHARLES E LOCKE

The Mining Industry.—In spite of some earlier predictions to the contrary, the year 1913 has been very satisfactory for the mining industry. Prices for silver, copper, lead and zinc, while not reaching the high level of some previous booms, have nevertheless mostly been above averages taken over a series of years. Higher prices have been obtained for Lake Superior iron ore, and shipments have again been very heavy, while the iron and steel production for the first half of the year again beats the record over any previous first half of the year. Statistics of the Copper Producers' Association have shown an almost continual decrease in stocks of copper on hand. This has been due largely to decrease in production owing to strikes and other causes and only partly to increase in consumption. Toward the end of the year a feeling of pessimism was apparent in some quarters and the year closed with matters in a rather unsettled condition with some uncertainty as to what 1914 will bring forth. The new tariff and other legislation are factors that will cause some readjustment. Basic industrial conditions appear to be sound, however, and it needs only a reëstablishment of confidence to lead to continued prosperity. (See also XIII, *Economic Conditions and the Conduct of Business.*)

Mining Law.—Additional burdens have been placed on the mining industry by legislative and administrative action. Some of these are undoubtedly for the general good but are not always viewed in that light by the mine owners. Among them may be mentioned the state laws leading to a more equable valuation and taxation of mining property (see XIV, *Public Finance*), the workmen's compensation acts (see XVII, *Labor Legislation*), the proposed law against gold dredging on agricultural lands in California, the suits for damage by farmers against smoke and fume produced in metallurgical works, the Government suit against the Southern Pacific Railroad for alleged fraudulent possession of oil lands, the lack of a definite understanding regarding the holding of mineral deposits on Government forest lands, and recent court decisions affecting the interpretation of the existing Federal mining law. Regarding the last, prospectors hardly know where they stand and they make complaints that between the Government bureaus of geology and forestry they have received manifestly unjust treatment. Congress has failed during the year to make any provision in the way of mining laws for Alaska, and the development of the rich mineral resources of that territory is still held up. The last step by the Government has been the withdrawal of all the potash beds in California which had been located under placer provisions of the existing mining law. The time appears to be ripe for the enactment of a comprehensive mining law which will remedy the deficiencies of the existing law and allow mining development to proceed without the possibility of Government interference or of outside litigation. It is interesting to note in this connection that in South Africa a system of letting the Crown Lands has been recently introduced in which the rent is figured on a sliding scale based on the net profit of operations.

Working of Low-Grade Deposits.—In regard to new discoveries it is

inevitable that as time goes on the possibility of discovering new mines must grow less. Future gains will come largely from improvement in methods which will render profitable the operation of properties which will not pay at present. As illustrations of this may be cited the recent formation of the Alaska Gold Mining Co. and other neighboring companies to work large and well known low-grade gold deposits near Juneau, Alaska; and the Chile Copper Co., which proposes to apply a leaching process to a large body of oxidized copper ore at Chuquicamata, Chile, which has long been worked in a comparatively small way and by uneconomical methods. This deposit is reported to contain 100 million tons of ore containing about three per cent. copper. A really new discovery is that of the Rochester silver camp in Nevada.

Improvements in Methods. — Improvements in mining practice have been in the increased use of the one-man drill, in the increased development of hydro-electric power for mining and transportation, and in some attempts to apply the principles of scientific management to underground work. The development of electric power on the Missouri River near Great Falls, Mont., is a noteworthy example of the second item. At Cobalt, Ont., the draining of Kerr Lake has been accomplished, thus rendering accessible the underlying ore bodies. The U. S. Bureau of Mines is continuing its good work. In addition to the mine rescue cars in various parts of the country, a new departure has been made in an automobile fitted with rescue apparatus which has been installed in the Lake Superior iron district. Work under way includes an investigation into improved metallurgical processes for the treatment of ores.

Labor Troubles.—Omitting the coal regions two large strikes have occurred, that at Porcupine, Ont., in the Winter of 1912-13, and that of the Lake Superior copper mines in the Fall of 1913. Both were due to agitation by the Western Federation of Miners. In the former the mine owners were victorious, and in the latter, while still unsettled, the indications are that it will be fought to a finish in which case the strikers can hardly hope to win.

Ore Dressing.—The increased application of the oil flotation processes stands out preëminently in the record of progress in 1913. At the Butte and Superior mill the Hyde flotation process raises the zinc extraction to 90 per cent. against 70 per cent. by wet concentration alone. The building of the Inspiration copper mill in Arizona has been held up pending experiments with the flotation process of the Minerals Separation Co. Other of the so-called "low-grade porphyry-copper mills" are experimenting with flotation on their slime tailings with promising results. The Sherwin Williams Co. has installed a flotation plant for zinc ores at Magdalena, N. M. The Atlas mill near Ouray, using the Minerals Separation Co. process, marks the first flotation plant in Colorado. An extraction of 65 per cent. is reported by it on a very difficult copper sulphide ore. Constant improvement is being made in Australia, the home of flotation, and the zinc extraction is continually on the increase, accompanied by a better elimination of the lead. An Elmore flotation plant is being installed at a cupriferous pyrite mine in Quebec. Unfortunately litigation has started in the United States, and the Minerals Separation Co. has secured a verdict against Hyde in a lower court for infringemnt of patent, but it is to be hoped that the growth of flotation will not be hampered by endless lawsuits.

The problem of losses in the slimes in wet concentration has been attacked by the Anaconda Company at Butte by the installation of the Laist process to save some of the copper and silver losses by roasting with salt followed by leaching. Another novel installation for treating slimes from Butte ores is a round table having 20 decks one above the other, each deck being 18 ft. in diameter. The continual striving for additional savings has led the Copper Range Co. to follow the lead of the Calumet and Hecla Co. at Lake Superior in installing a regrinding plant in which tailings which formerly went to waste are reground in Hardinge conical peb-

ble mills and retreated. Power for regrinding is obtained economically by the use of low-pressure steam turbines run on exhaust steam from the steam stamps. The Wilfley table people have won several suits for infringement against makers of similar tables and other suits are under way. Attention is being turned to the concentration of lean iron ores of the hematite grade. Two large mills are in operation in the Mesabi district of Minnesota. Also at Diorite, Mich., the American Boston mill treats 400 tons of low-grade iron ore daily by means of Richards' jigs and concentrating tables. The field for such mills will increase as the high-grade iron-ore deposits are mined out.

Bibliography.—Among the more important books of the year are the following:

CHARLETON, W. H.—*American Mine Accounting.* (New York, McGraw Hill Book Co., 1913.)

HOOVER, T. J.—"Concentrating Ores by Flotation." (London, *Mining Magazine*, 1913.)

JANIN, Charles.—*Mining Engineers' Examination and Report Book*, part I. (San Francisco, 1913.)

Mining World Index of Current Literature, Vol. II. (Chicago, 1913.)

COAL, COKE, AND PETROLEUM

R. DAWSON HALL

Developments in the Coal and Coke Industry.—A manifest tendency in the coal industry during the year has been toward central-station power which may be either generated by the coal operator or provided by a power company. In a few cases hydro-electric plants are being erected close to coal workings; in West Virginia, for example, the Appalachian Power Co. is selling power even to companies which are mining one of the finest coal seams in the country. Many plants equipped with non-condensing reciprocating slide-valve engines are now being replaced and the change to steam turbines with condensers makes markedly for economy.

Bituminous coal for domestic purposes has for many years been prepared less carefully and scientifically than anthracite and it has long been thought that mechanical cleaning devices used in the hard-coal regions would be adapted to the soft-coal fields. Spirals for removal of bone and slate have been introduced into Illinois and a cleaner dependent on the power of coal to roll on a slope and of slate to lie still has been used to advantage in Pennsylvania where moving plates on an incline carry away the slate and let the coal roll down to a hopper. But at present the picking table is in possession of the field and more picking tables than other dry cleaners have been and are being installed throughout the bituminous region.

A machine which combines in one the operations of sawing and drilling has been extensively tried in the soft coals of the New River, W. Va., field, for undercutting the coal before shooting. It is alleged to make slack but no dust. Two heading machines have been used to drive gangways of circular cross-section at a single operation. One of these operates with a direct punching action, cutting the whole coal or rock ahead of it into pieces. Mining machines specially adapted for severe strains have been tried by two of the large anthracite companies. Hitherto hard coal has not been mined but shot out of the solid. In one mine where the seam is thin, the coal after undercutting is being shot down on to pans and pulled by a rope to the cars into which it is to be loaded. Where the coal is thicker, "buggies" have been used which run on 6-in. wheels and being supported eccentrically can be tipped so that the load in bulk can be dumped into a mine car. It has been found that economies have been effected over shooting from the solid; the coal being less broken, being mined more cheaply and not being lost by being shot into the gob or waste portions of the room.

Safety in Mining.—The H. C. Frick Coke Co. originated the expression "Safety, the first consideration"; the coal industry has made the thought universal and it is certain that safety absorbs as much attention to-day as

the economy of mining. The state of Colorado passed a law that after Oct. 1, 1913, only electric lamps shall be used in coal mines except where explosive or noxious gas is generated, and there an approved safety lamp must be supplied for testing purposes. This provision was made dependent on the Bureau of Mines approving such an electric lamp and as that Bureau has approved three lamps for use, one a hand and the two others cap-lamps, the act should automatically come into force.

In Oklahoma and Colorado, laws have been passed requiring telephones in the mines; these in Oklahoma have to be not more than 1,000 ft. apart and in Colorado distributed through the workings at the bottom of the shaft, slope or drift and at all double partings. Illinois has laws requiring the fireproofing of all shafts and their approaches and also of the buildings round the shafts. In some Colorado mines the headings are covered with adobe dust and boards loaded with stone dust are placed at the sides of the gangways. The placing of this dust is done by pneumatic means.

In some southern mines where shots are fired electrically from the surface after the men have left the mine, a modification has been adopted whereby one or more shots can be fired at a time, thus avoiding the synchronous cross fire from which disasters are said to have arisen.

First-Aid and Rescue Work.—An organization known as the American Mine Safety Association was organized during the year to frame rules for first-aid and rescue work. The rules for the latter are in an advanced stage, but first-aid methods are still in need of much revision and discussion. Great progress has been made in all the states toward the organization of first-aid and rescue teams, and the miners are generally conceded to have the best trained first-aid men in the country.

Industrial Conditions.—There has not been for a decade such a buoyant spirit as in the present year. The strike of the Spring of 1912 lessened the stock of anthracite and so business in that commodity has been a little better than usual. Business has been brisk in bituminous coal the year round but the year closed with lower quotations. There was a dullness in coke in the last half of the year owing to a deadlock between foundrymen and cokemen, the latter seeking to secure a price which ultimately they did not obtain. It is likely that, when the returns are received, the year 1913 will show an increase of about 10 per cent. in output of coal over the previous 12 months. The tonnage in 1912 was 534,466,580 according to the returns of the Geological Survey. Owing to the unfortunate accidents at Cincinnati, New Castle and Dawson, the death rate for 1913 will show a marked increase per thousand men employed and even per million tons mined. The increase per thousand men is due partly to steadier work, but the increase per ton is due to chance, as the mines are being made safer every year.

Disasters involving 10 men or more in 1913 are: Feb. 7, Rufford shaft, Mansfield, England, hoisting accident, 14 killed; April 23, Cincinnati mine, Findleyville, Pa., explosion, 96 killed; May 17, Imperial mine, No. 3, Belle Valley, O., explosion, 15 killed including one rescuer; July 23, Gelsenkirchen, Germany, asphyxiation following entombment, 14 killed; Aug. 3, Mavis Valley shaft, Cadder colliery, Scotland, asphyxiation following fire, 22 killed; Aug. 21, East Brookside mine, Tower Hill, Pa., two explosions, 20 killed, including eight rescuers; Oct. 4, Universal colliery, Senghenydd, Glamorganshire, Wales, explosion, followed by fire, 434 killed, including one rescuer; Oct. 22, No. 2 mine, Stag Cañon Fuel Co., Dawson, N. M., explosion, 263 killed, including two rescuers; Nov. 18, No. 2 mine, Alabama Fuel & Iron Co., Acton, Ala., explosion, 24 killed; Dec. 16, Vulcan mine, Rocky Mountain Fuel Co., New Castle, Col., explosion, 38 killed.

Coking.—Only the very largest concerns are installing by-product coke ovens though a big profit results from their use. However, numbers of ovens are being fitted with waste-heat flues and boilers. As each oven produces 20 h. p., the installation pays for itself in a single year. The beehive oven is giving way to the rectangular oven, which can be charged, leveled and drawn by machinery. But in

many cases the owners believe that their plants have too short a life to permit of remodeling. A plan has been tried of placing portable boilers over the trunnel heads of ovens during the coking period to utilize waste heat.

In order to produce coke of equal value, charge cutters have been introduced on the larries feeding the ovens, which regulate the charge given to each oven. In order to make uniform the duration of the coking process and to preserve the heat of coking, which is none too great when the coal has a low volatile content, experiments have been made in the drying of coal before coking. Tests have been made of what is practically a winnowing process of blowing away the pure coal from the slate and bone.

Petroleum. — The contention that coal mines were endangered by drilling for oil and gas resulted in a conference called by the Bureau of Mines at Pittsburgh on Feb. 7. The conference appointed a committee which met March 11 and drew up the final draft of a law governing such drillings. The most striking proposals were that the casing used should not be cemented solidly to the enveloping measures, but so set in clay that a motion of the strata during mining might not sever the pipe. But the committee did not give preference to either clay or cement mortar in drafting the suggested bill. The state Department of Mines of Pennsylvania took no part in the discussion and is now investigating the matter independently.

Despite the marked improvement in petroleum prices, the oil fields of the United States have been extended but little and no new oil regions have been discovered. Abroad, the illiberal action of the Russian government has restricted the natural increase in production, but petroliferous areas are continually being found.

The Royal Dutch Shell Combine has recently arranged for the purchase of the stock of the California Oilfields, Ltd. The Shell Company, which is a strong competitor of the Standard Oil group abroad, is preparing, it is said, to get a foothold in America. The exports of oil in 1913 have exceeded those in 1912 by about 10 per cent.

The making of oil from the gas escaping at the casing head is greatly increasing, the production of oil from this source being 45 per cent. larger in 1912 than in the previous year. The Bureau of Mines has successfully introduced into the mid-continent oil fields a new system of drilling and casing wells whereby it is now possible to drill through gas formations without regard to volume or pressure and remove oil without waste of gas. A wild gas well has been subdued by drilling another well near by, forcing air down it under pressure, creating a breach in the wall of the wild well and driving mud through the breach till the uncontrolled well became choked.

IRON AND STEEL

BRADLEY STOUGHTON

Ore Deposits.—The acquisition of iron-ore holdings in Chile by a large American company has again drawn attention to the deposits of South America. The iron-ore deposits in Brazil and Venezuela are known to be very large in extent. There have also been reported large deposits of iron ore in Colombia. The manganese ores of India are coming into prominence. Development work in Siberia, where large deposits of iron are known to exist, is more active; important deposits of chrome iron ore are reported from northern Caucasus. In the United States, the Texas iron ores are being more actively developed by the building of large smelting works in that state, and an important innovation in the north is the treatment of titaniferous ores on an industrial scale. That these ores can be treated has long been known, but attempts at industrial smelting have been sporadic. Nevertheless, numerous deposits of this class of ore are known to be available in this country, in Sweden and elsewhere.

Blast-Furnace Construction and Operation.—A new type of blast-fur-

nace support consists in building a frame work of structural material, with posts set well out from the base of the furnace so that there will not be interference by the supporting columns with the men working around the furnace, which usually prevails. The use of oxygen for enriching the blast has been materially increased and the effect has been studied from a technical industrial standpoint. Experiments have been made to use blast-furnace flue dust for mixing with cement, but the results are not encouraging, as the concrete mixture is weakened. Great progress has been made in the past two years in the cleaning of blast-furnace gas, and, consequently, in the increased use of gas engines. Improvements consist in cheaper apparatus for washing the gas, and also means of filtering the gas through bags and then delivering it in a purified condition free from moisture.

Ore Briquetting.—It is well recognized that the more uniform the size of material treated in the blast furnace, the better are the smelting results obtained, as to efficiency and economy. The two ways of securing uniform size are by crushing the larger particles and agglomerating the smaller ones. Agglomerating processes have, therefore, increased in importance during the past few years. The only new process of importance is the scoria process, whereby the fine ore is mixed with lime and agglomerating slag, heated in rotating steam drums and then made into bricks and heated in kilns. The slag is said to keep the solid body porous and when it reaches the melting zone it changes from a hydraulic binder to a fused binder. It has been pointed out that the use of agglomerated material made by the sintering process has the advantage that the resulting "sinter" is not so easily reducible as some of the native American ores and, therefore, does not oxidize the coke in the upper regions of the furnace. Such oxidation produces a greater proportion of carbon monoxide in the escaping gases, with consequent decreased efficiency.

Cupola Practice.—Cupola slag is not suitable for making cement or bricks in accordance with the practice used in blast furnaces, but it is now sometimes converted into slag wool by a blast of air and then used for insulating purposes. Extensive investigations have been made on the heat efficiency of the cupola furnace. It is known that the chief waste is in the excessive heat of escaping gases, and this can be reduced by making the furnaces much higher, whereby it is said that the fuel economy may be doubled.

Steel Ingots.—In the very important particular of producing sound steel ingots very notable advances have been made during the year 1913. It is comparatively easy to tell by the usual tests whether the structure and composition of steel equals a given standard or quality, but certain dangerous defects, which may be inherent in the metal, will often escape the ordinary study, and may be difficult to discover even by such extraordinary investigations as sulphur-prints, microscopic examination, hardness tests, shock tests, etc., unless these are carried out on such an extensive scale as to destroy the steel for service. Defects of this character are generally classified under the head of unsoundness; the chief of such defects are: presence of blow-holes; presence of occluded oxides; presence of unwelded shrinkage cavity; and excessive segregation.

The most effective means of preventing these elements of unsoundness is by the exercise of great care and watchfulness during the manufacture of the steel and during the manufacture of the iron from which the steel is made. It now seems to be proved practically beyond controversy that certain unfavorable conditions during the smelting of iron ores in blast furnaces will produce a grade of pig iron which, during the ordinary process of manufacture, will be converted into an unsatisfactory grade of steel. The literature on cast iron during the years 1913 and 1914 will be ample proof of the accuracy of this statement, and fortunately, careful and expert inspection of the manufacturing process and suitable testing of the product are sufficient to prevent steel of this undesirable quality from going into service. Expert care and inspection during the manu-

facture and rolling of steel are also the best safeguards for preventing steel which is unsound from any of the other causes mentioned above from going into the service of the consumer. One of the greatest advances ever made in the manufacture of steel is the new system of inspection inaugurated by Robert W. Hunt and described by him in the *Bulletin* of the American Institute of Mining Engineers for December, 1912.

An English and an American investigator have used the compression process for elimination of the pipe in a way which aims to avoid interference with the manufacturing process and decrease interest on the investment, by taking the steel ingot before it has completely solidified and reducing its section in an ordinary pair of blooming rolls, then returning it to the heating furnace until completely solidified and completing the rolling operation in the usual way. Other recent investigators have aimed to accomplish the same reduction in the cost of treating the steel over the early compression process, but none of these newer inventions secures the elimination of the shrinkage cavity, but only the reduction of it to a smaller size, or a greater concentration at the top of the ingot, with a consequent smaller proportion of cropped-off metal. Sir Robert Hadfield burns charcoal on top of the steel ingots in a special mold with a sand top, so as to delay the cooling of this portion of the metal, and consequently draw the shrinkage cavity to that point. Emil Gathmann, by a very ingenious method of casting ingots with the small end down, and then stripping them without excessive inconvenience, as well as by distributing the metal in his ingot molds, also produces a more rapid cooling of the lower parts of the ingot than of the top, and thereby concentrates the cavity in the upper portion.

The Goldschmidt process involves heating the metal in the top of the ingot by the well known thermit reaction, or else by creating a stirring reaction in the ingot by means of a can of thermit, through which it is claimed that blow-holes, pipes and segregation are all reduced. Each of these cavity-reducing processes has been tried on a commercial scale long enough to prove its advantage under a given set of conditions. A new compression process also, which has been used chiefly on smaller ingots with a split mold, is in commercial use; and a process has even been developed for treating steel *in vacuo*, in order to get rid of the dissolved gases and occluded solid particles.

Open-Hearth Furnaces.—The use of open-hearth furnaces with replaceable up-takes and flues is increasing in Europe. It has been pointed out, however, that this is not a modern invention but was in use several years ago in this country. A very elaborate heat-efficiency test of the open-hearth furnace made on two 60-ton furnaces indicates that only 10 per cent. of the heat supplied goes to the melting and less than 19 per cent. performs useful work. This confirms the belief that the open-hearth furnace is not an efficient heat utilizer. A few years ago it was generally believed that the tilting open-hearth furnaces would no longer be an important factor outside of special processes, but during 1913 there has been a big revival of interest in this type of steel producer.

Other Steel-Making Processes.—A very remarkable record has been made by a crucible furnace, which ran three years, nine months and eleven days continuously without requiring to be shut down for repairs. It is believed that this establishes a record for this kind of furnace. A combination open-hearth, side-blow converter and electric furnace has been installed and recently put into operation at a steel plant in Maryland. The apparatus has not been worked long enough to decide what measure of success may be expected, but the results are watched with great interest, although without very much expectation of commercial success. An experiment on the over-oxidation of steel in the Bessemer converter discovered the wholly unexpected difficulty of making the metal absorb more than 0.075 per cent. of oxygen.

Electric Steel Furnaces.—At the present time there are about 150 active electric furnaces in the world, of which only 19 are operating in the United States, and most of these only

at intervals. The manufacture of electric steel and electric pig iron in the United States is not fulfilling the hopes of its early advocates from the commercial standpoint. (See also XXVI, *Electrochemistry.*)

Pulverized Fuel.—The recent heavy advance in the price of oil has again directed attention to the use of other fuels which can be employed equally advantageously in the matter of control, application and economy. Prominent among these is pulverized coal and this is now being used very largely in metallurgical furnaces on an industrial scale and also in experimental work in other places. Pulverized fuel has been employed for a long time in cement kilns, rotating furnaces, malleable iron annealing, etc. It is now being tried on a large scale in reverberatory furnaces of the open-hearth type, in puddling and heating furnaces, etc.

Critical Point A2 and Beta Iron.—At the Spring meeting of the British Iron and Steel Institute several investigators discussed the critical ranges of pure iron, and concluded that the A2 point did not exist. This conclusion was, however, overthrown at the autumn meeting of the American Institute of Mining Engineers, where it was established that the A2 point was a true critical point in iron. The most that the work of the British investigators may be said to have contributed to the advancement of the subject is to throw some doubt upon the belief in the hard *beta* allotropic modification of this metal. Henry M. Howe has established the importance of a new method for the determination of critical points in iron.

New Alloy Steels.—Parravano has studied the ternary alloys of iron, manganese and copper, and indicated the possible industrial importance of some of them. Cobalt has been used to improve the qualities of alloy steels, and especially high-speed steels. The results are viewed with great interest, although their industrial importance is not yet fully established. (See also XXIII, *Physical Properties of Metals and Alloys.*)

COPPER

L. S. Austin

Roasting of Copper Ores.—Much mine ore must be concentrated before treatment. The resultant fine concentrate, because of flue-dust losses, which in the blast-furnace may amount to 10 per cent. and over, is preferably treated in the quieter atmosphere of the reverberatory furnace. In this furnace, if the ore were unroasted, there would be produced an excessive quantity of resultant low-grade matte, involving expensive after-treatment. To avoid this the concentrate or other cupreous material should be roasted. For this purpose modern roasters of the MacDougall, the Herreshoff or the Wedge type are generally used. These machines have four to six superimposed hearths within a drum-shaped shell.

Performance of the MacDougall Roaster.—At Great Falls, Mont., the capacity of the 16-ft., six-hearth MacDougall roasters has been largely increased, so that, while in April, 1910, the output was 46 tons, in April, 1913, it had been increased to 77 tons daily, the material being roasted from 30 per cent. to an average of 7.5 per cent. of sulphur. This was brought about, first, by the greatly increased draft that the new flue-system of the plant afforded, and second, by the increased speed of the rabbles. Incidentally, the charge is dropped from hearth to hearth through special drop-holes, rather than through the draft-openings, thus lessening the amount of flue-dust produced. An improved hearth of reinforced concrete has also been tried out, and after a year's use it is still in good condition.

Roasting in the Southwest.—In the southwestern states the ore contains less sulphur and cannot, as in Montana, be roasted quite by the heat generated in the burning of its contained sulphur. Coal or oil is therefore used as needed, either in a fire-box attached to the side of the furnace and with its flame entering the

lower hearth, or, when the ore is at the limiting point of 26 to 27 per cent. sulphur, by the addition of some coal thrown in at the third hearth. Wedge furnaces, of 22 ft. or more diameter, may have as many as seven hearths. Their distinctive feature is that the hollow central shaft is three feet in diameter, lined with tile outside where exposed to the flame. They have a capacity of 130 to 150 tons daily. The 18-ft. MacDougall roaster may be called the standard size. At the Hayden Smelting Works, Arizona, there are, however, five 24-ft. roasters having five hearths, and three 19-ft. machines having six hearths, each of these furnaces roasting 90 tons daily. Since the concentrate here treated is wet and contains but 24 per cent. sulphur, it is necessary to heat the furnaces with a little oil from time to time.

The Blast Furnace.—At Great Falls, Mont., a blast-furnace 84 in. wide by 15 ft. long has been in operation for some time. Generally, the width of blast furnaces varies from 42 to 56 in. It is claimed that the blast can still penetrate the greater thickness of charge provided the ore is so fed that the coarser material is at the middle and the fine near the walls. With such a width accretions obstruct the shaft less, while the increased area results in larger tonnage. At the Detroit Smelter, Morenci, Ariz., where concentrate is treated in a blast-furnace of 42 in. by 22 ft., the furnaces are run slowly, putting through 350 tons daily; it is proposed to put in a 30-ft. furnace to run still more slowly, and thus to cut down the production of flue-dust, while at the same time more sulphur will be driven off or volatilized with a less yield of matte, but a higher grade. At the Shannon plant near Clifton, Ariz., the ore contains so little sulphur that pyrites must be added to the charge to form matte with which to collect the copper.

The Reverberatory Furnace.—As already stated, the reverberatory furnace is well suited to the treatment of fine concentrate, and since the large furnaces, 19 to 22 ft. wide by 90 ft. to 122 ft. long, smelt cheaply, they are supplanting the blast furnace. At Cananea, Sonora, Mexico, the calcine or roasted concentrate, together with raw Miami concentrate containing 35 per cent. copper and 20 per cent. sulphur, is treated in furnaces 19 by 100 ft. long, which handle 260 to 275 tons each daily. There is used per ton of charge 0.8 bbl. of California crude oil. The oil is heated by means of a steam coil, and is injected by air at 13 lbs. pressure, steam for this purpose having been discarded. Additional air for combustion is introduced through a brick checker-work above the burners. The same Miami concentrate is also used for fettling or repairing the walls of furnace where the molten matte and slag corrode them, and is better for the purpose than the silicious ore formerly used.

Converters.—In the YEAR BOOK for 1912 (p. 493) was described the 20-ft. upright converter installed at Great Falls. As the result of practice both with it and with the 12-ft. upright converter it is concluded that: (1) The best practice calls for the use of the basic-lined converter instead of the acid-lined one. (2) The 20-ft. converter is to be preferred, even in large plants. It can be used for the storage of the molten matte or for molten copper for long periods if the mouth is properly covered. Therefore in a smaller plant, with large blast-furnace settlers and a large reverberatory using at the same time a 20-ft. converter, it should be possible to do the converting of the matte on one shift and the casting of the resultant copper on the next one. (3) A 2¼-in. tuyere has been found preferable, being as large as is safe, while on the other hand it admits more air and is more easily punched and kept open. (4) To prevent the too rapid crusting and closing of the mouth of the converter it should be made eight feet in diameter; if much larger it would permit the heat and gases to escape too freely. (5) The tuyeres should be at least five inches above the converter bottom.

The best results are obtained by the use of 18,000 cu. ft. of free air per minute, though up to 24,000 cu. ft. have been successfully used. At the lower figure one can count on utilizing at least 94 per cent. of the oxygen of the air.

In spite of the advantages of the

large converter we find that in the newer plants built in the Southwest in 1912 the smaller or 12-ft. upright electrically-operated converter has been installed. The shape of the upright type is considered to promote the durability of the lining to an important degree.

Flue Systems.—The experience with the new flue system at Great Falls, Mont., in operation since June, 1909, is particularly valuable. This system included the flues from the roasting furnaces, the blast furnaces, the reverberatories and the converters of the plant united in one flue leading to a main dust-chamber 176 ft. wide by 21 ft. high by about 400 ft. long. The speed of the gases (20 ft. per second or more in the flues) is reduced to four feet per second in the dust chamber. At this low velocity the gas quite readily drops its load of flue-dust. From the roof within the chamber hangs in two groups a forest of No. 10 wires, 1,200,000 in number, each 20 ft. long. The flue-dust accumulates on these wires. Occasionally the hot gases from the reverberatory furnaces are let in at the entrance end of the chamber and by their high temperature cause the fall of this flue-dust to the floor. From the chamber a flue, 48 ft. wide, 21 ft. high, and 1,350 ft. long, leads to a stack or chimney 506 ft. high and 50 ft. internal diameter.

As compared with the old flue system, on account of the stronger draft and because of the enlarged use of finer material, there is twice as much dust made in the new system. On the other hand, practically all of this dust is recovered. Of the total amount deposited in the main dust-chamber 77 per cent. has been removed after passing through the first group of wires and 1.5 per cent. only remains after passing the second group.

GOLD AND SILVER

LOUIS D. HUNTOON

Low-Grade Mills.—During the past year the attention of the mining profession was repeatedly called by the technical press to the successful operation of many mills operating on ore containing from $2 to $3 per ton. In the Cripple Creek district the small percentage of high grade ore produced is shipped to the smelters. The dump ore, discarded as waste only a few years ago and containing between $2 and $3 per ton, and the low grade ore from the mines are now treated at an attractive profit. The method employed at the Independence Mine, the first to treat successfully the dump ores, is worthy of a short review. The annual report for 1912 to 1913 will contain the following: ore milled, 104,111 tons from the "waste dumps" and 25,999 tons from the mine; assay, 0.1538 oz. of gold; recovery, 34.43 per cent. of the values in the concentrates and 44.05 per cent. in bullion, making a total of 78.48 per cent., as compared with 73.63 per cent. in 1911-12 and 71.50 per cent. in 1910-11; concentrates produced, 1,429 tons first grade assaying 4.118 oz., and 545 tons second grade assaying 1.847 oz. per ton; total milling cost, including mining of dump ore, $1.44 per ton. The treatment consists of crushing through gates, breakers, rolls and Chili mills for coarser ore, and tube mills for coarse sands, followed by classification, concentration, leaching of sands, air agitation and vacuum filtration of slimes. Sands and slimes are cyanided separately; the slimes before sending to the filters receive a treatment with bromo-cyanogen. Concentrates are shipped to the smelter. Previous to the erection of the Independence mill the lowest treatment charge in the Cripple Creek district was $6 per ton. Several mills were erected following the success of the Independence. The Portland started operations along different metallurgical lines, but in 1913 the process was quite similar to, if not a duplicate of, the Independence. At the Ajax mill the Clancy process was installed and concentrators omitted; this mill proved a failure and in 1913 concentrating tables were installed. The oxidized ores of the dis-

trict, which are very limited, require no concentrating, but with the sulphotelluride ores concentration is a prerequisite to success.

In the Black Hills of South Dakota several mills are operating on low-grade ore. At Wasp No. 2 a 300-ton mill operating on ore containing $2.66 per ton showed a loss, but on increasing the capacity to 500 tons per day, profits of $5,000 per month were made. The Trojan mill is operating successfully on $6 ore; the Golden Reward on a variety of ores assaying from $7 to $8 per ton, and the Bismarck on $2 to $2.50 ore.

New Mills.—Specifications for two new mills in the Southwest, the erection of which is well under way, serve to illustrate the advance in mechanical handling of the ores. At the Commonwealth mill, Pearce, Ariz., Gates breakers, followed by 1,500-lb. stamps, were specified for crushing. Following the stamps are Caldecott diaphragm cones, Hardinge mills, Dorr classifiers, tube mills, Dorr thickeners, agitators, counter-current Dorr thickeners and Oliver filters.

Breakers.—It would appear that the Symons disc crusher, which received strong endorsement during the year, may be a strong competitor with stamps for preliminary crushing. A large number of the machines were successfully operated in the copper mills and a few in the gold mills. During the year a machine to receive 1½- to 2-in. material and reduce it to 3/32 in. was introduced. The following are the results of two tests: (1) Material hard red granite, sized between 1 in. and 2 in.; machine set for 3/32-in. product; capacity of machine, 30 tons per hour; product, no oversize and 31 per cent. under 2 m.m. (2) Same material, 50 per cent. between 1 in. and 2 in. and 50 per cent. product from first test after eliminating fines; machine set for 3/32 in.; capacity, 25 tons per hour; product, 49 per cent. under 2 m. m.

Hand Sorting.—By preliminary hand sorting from 10 to 20 per cent. of waste was discarded at most of the mills operating on the Rand. With large installations and low-grade ore many engineers claim that preliminary sorting is not warranted. There is a great difference of opinion on this point but where milling costs are from $1 to $2 per ton or more the question should be carefully considered, as the cost of the necessary plant per ton of ore is far less than the investment required to increase the capacity of the mill, an amount equal to the waste discarded. The annual reports for 1912 show that at the East Rand, milling 52,000 tons per month, 13 per cent. of waste, and at the Crown Mines, milling 182,000 tons per month, 12 per cent. of waste, was discarded by hand. At the new mill of the Knights Deep, estimated capacity 100,000 tons per month and assay of $4, hand sorting has been omitted. The complete preliminary washing and hand-sorting plants at the West End and Belmont mills of Nevada have operated successfully.

Stamps.—Eighty stamps weighing 1,900 lbs. were specified for the new mill of the Van Ryn Deep located on the Rand. This would indicate that the maximum weight had been reached, there being one installation of stamps weighing 2,200 lbs. The weight of stamps in the United States has been gradually increasing. On the Mother Lode of California the weights vary from 850 to 1,250 lbs. with an average, for 24 mills containing 1,090 stamps, of 1,000 lbs. In the Southwest recent installations of 1,400 lbs. were made and during the specifications for the Commonwealth mill at Pearce, Ariz., called for 1,500-lb. stamps. For the Shamva mill, Rhodesia, with an estimated capacity of 2,000 tons of ore per day, Nissen stamps were specified.

Removable front mortars, similar to those originally designed for the Cinco mines of Mexico, were received with much favor and it is reported that this type of mortar was specified for the Commonwealth mill of Arizona. This mortar differs from the old style in that instead of the front being cast solid with the rest of the mortar, it is a separate plate of steel secured in place by heavy key bolts. By removing this piece the whole of the interior of the mortar is made accessible.

Pulverizing.—The Hardinge mill has been received favorably in the copper mills for fine crushing and a few installations have been made in gold

mills. For the sliming of ores the tube mill is preëminent. The short tube mill with slightly increased diameter has been adopted in place of the longer mill. On the Rand, at the Van Ryn Deep, eight mills, 6 ft. by 16½ ft. were specified, and the installations at Roodefort were 6 ft. by 16 ft. At the low-grade Nipissing mill, Ontario, which started operations in November, 1912, four 6-ft. by 20-ft. tube mills were installed. All recent installations in Nevada have been short: McNamara, 5 ft. by 16 ft.; West End, 5 ft. by 18 ft.; and the Tonapah Extension, 5 ft. by 18 ft.

Amalgamation.—The tendency for the past few years has been to eliminate amalgamation wherever possible and recover the gold-silver by cyanide. At the Hollinger mill pan-amalgamation of concentrates was replaced by fine grinding in a ten-pound cyanide solution. The extraction by this method, on concentrates assaying $150, was 94 per cent. Plates were discarded at Lhuvia de Oro, Chihuahua, and tube mills introduced before cyaniding. On the Rand the plate area has been gradually reduced until but 1.4 sq. ft. per ton of ore is used at the Princess Estate mill.

Classifiers.—Cones preceding tube mills are rapidly being replaced with Dorr classifiers and for the washing of pregnant solutions from sands the Dorr triplex counter-current classifier was introduced during the year and received most favorably.

Cyaniding.—Counter-current Dorr thickeners were installed in many mills and met with great success. An installation was made at the Globe and Phoenix mill, Rhodesia; the sands from concentration, containing a small percentage of antimony, are roasted in Edwards furnaces, pulverized in pans with cyanide solution, passed over blankets to extract coarse gold, and finally cyanided in agitators and washed with Dorr counter-current thickeners. It was reported that considerable saving was made by the introduction of counter-current thickeners. At the Hollinger mill of Porcupine experiments conducted last year with Dorr machines has resulted in plans for the installation of a complete Dorr counter-current installation. Their flow-sheet will be: stamping in cyanide solution, tube-mills, Dorr thickeners, concentration, treatment of tailings in Dorr counter-current thickeners, and final discharge of pulp to filters. At the Lluvia de Oro mill, charge agitation followed by washing and filtration was replaced by continuous agitation followed by counter-current thickeners; the dissolved values in the tailings were reduced and an increased extraction obtained.

For agitating pulp in cyanide solution another Dorr machine has been placed on the market which is meeting with the same success as the Dorr classifiers and thickeners. Dorr agitators have replaced other types at the Liberty Bell mill, and the mills of Nevada Hills of Nevada, the Nova Scotia of Cobalt, the Hollinger of Porcupine, Ontario, and the Ophir mill at Telluride have installed these machines.

Vacuum filters of the Butters type have been received with favor on the Rand. The total capacity of these filters at the close of 1913 on the Rand was approximately 8,000 tons of slimes per day. At the new mill of the Van Ryn Deep, with an estimated capacity of 40,000 tons per month, Butters filters were specified. In the United States the Oliver filter preceded by Dorr counter-current thickeners appears to be in favor; this installation was specified for the Commonwealth of Arizona.

Precipitation.—Zinc shavings and zinc dust were both used for precipitating values from pregnant solutions in practically all of the gold-silver mills. In the Cobalt district the pregnant solutions contain more or less arsenic and the dissolving power of the cyanide solution after precipitating on zinc was seriously interfered with. Experiments proved that this was due to the presence of zinc and arsenic in the mill solutions and that a precipitant other than zinc would have to be used. Aluminium dust was finally adopted. This in turn necessitated the design of special precipitating apparatus. The process as operated during the year consisted of the addition to the silver-cyanide solution of an amount of aluminium dust slightly in excess of one-eighth

of the weight of silver to be precipitated, agitating for approximately 15 minutes in a machine especially designed for the process, and filtering the precipitate through a press. Shortly after the installation, from 97 to 98 per cent. of the dissolved silver was precipitated and the indications were that an efficiency of better than 99 per cent. could be expected. Not only has the aluminium been an efficient precipitant, but it has the added advantage of regenerating the strength of the solution by an amount approximately equivalent to the cyanide combined with the silver. To avoid the tendency of the aluminium dust to float and also to reduce the cost, experiments in the use of granulated aluminium in a tube mill for precipitating were contemplated. The precipitate, containing 93 per cent. of silver, is melted after drying in one operation to bullion 999 fine.

At the Hollinger Mine of Porcupine the gold precipitated from cyanide solution, which formerly received an acid treatment before refining, was during the year fluxed directly and melted in a lead stack; the lead bullion produced was then cupelled and the resulting gold bullion refined in a Steele-Harvey furnace with a small amount of oxidizing flux.

LEAD

H. O. Hofman

Results of Research.—O. Proske (*Metall und Erz*, X, 415) has studied the effect of iron oxides on the decomposition of $PbSO_4$. He finds that $PbSO_4$ heated in a current of air is only slightly decomposed below 900 deg. C., and that above this temperature decomposition is more rapid. The presence of Fe_2O_3 favors the decomposition, but to a less extent than does SiO_2. Ferric oxide which has been previously heated to 1,200 deg. C. is a more effective decomposing agent than is the ordinary red oxide. It was found that if FeO was present, it is oxidized up to 800 deg. by the air, but above that temperature it takes up oxygen from the decomposing sulphate. Ernst J. Kohlmeyer (*ibid.*, 447, 483) has thrown further light on this subject in his study of the ferrites of PbO. He finds evidence of the following compounds: $3PbO.Fe_2O_3$, $3PbO.2Fe_2O_3$, $PbO.Fe_2O_3$, $2PbO.3Fe_2O_3$, $PbO.2Fe_2O_3$ and possibly $PbO.FeO.4Fe_2O_3$. The melting point of PbO reaches a minimum when 12 per cent. of Fe_2O_3 by weight is added, being lowered from 885 deg. to 752 deg. C. SiO_2 decomposes the ferrites at 1,080 deg. C. with the formation of silicates. Hot acetic acid completely dissolves the PbO from the ferrites. W. Truthe (*Zeitschr. für Anorgan. Chemie*, LXXVI, 161) has determined the freezing points of PbS-$PbCl_2$ mixtures. The system forms a simple V-type of curve with the eutectic line at 441 deg. C., the eutectic contains 22 per cent. PbS by weight.

Some experiments in the treatment of copper-lead mattes are described by W. Menzel (*Metall und Erz*, X, 193, 219). The attempts to separate the matte by producing a light copper matte and a heavy lead matte by the addition of alkali were unsuccessful. The addition of lime and carbon caused metallic lead to separate, the amount increasing with the lime. A 50-per-cent. extraction of lead was obtained in this way. The lead carried four per cent. copper. Smelting with lime and iron extracted 63 per cent. of the lead, which carried nearly five per cent. copper. Smelting with powdered iron oxide yielded 70 per cent. of the lead.

Blast Roasting.—The Dwight-Lloyd sintering machines continue to meet with favor. The work done at Cerro de Pasco, Peru, is described by R. L. Lloyd (*Mining and Scientific Press*, 1913, *106*, 908). The interesting feature here is the high altitude at which the plant is situated, 14,000 ft. It was found necessary to increase the intensity of the igniting flame, but when once ignited the charge roasted satisfactorily. On account of the slower combustion at this altitude, it was found possible to roast material with 25 per cent. S, which is considerably higher than is possible at lower elevations. A large amount of sulphur was driven off in the ele-

mental state; this probably accounts for the fact that the elimination of sulphur is rapid in spite of the rarity of the atmosphere. At lower altitudes the free sulphur collects in the fans and frequently ignites, but at Cerro de Pasco the sulphur which collected on the fans did not ignite and was easily removed.

Smelting Plants.—On reading descriptions of modern lead-smelting and refining plants appearing in the literature of the year, one is struck principally by the various mechanical devices designed to minimize hand labor, by the precautions taken to prevent waste, and by the magnitude of the operations. The Omaha plant of the American Smelting and Refining Co. which, with a monthly output of 10,000 to 16,000 tons of lead, is the largest lead refinery in the world, has been described by H. B. Pulsifer (*Mining and Engineering World*, XXXIX, 457). The lead bullion is charged direct from the railroad cars into the softening furnaces by a traveling unloader, thus saving all intermediate handling. The softening furnaces are tapped into elliptical desilverizing kettles holding 75 tons of softened lead bullion. Each kettle requires about one ton of zinc for desilverization and makes three tons of first crust. The refining furnaces which receive the desilverized lead from the kettles are duplicates of the softening furnaces. Steam is used to oxidize the zinc. From the refining furnaces the lead is tapped into molds and then loaded directly into shipping cars which arrive on depressed tracks so that the floor of a car is on a level with the molding floor.

At the National Works, South Chicago, also described by Mr. Pulsifer (*Mining and Engineering World*, XXXIX, 153, 205), the lead is unloaded from the cars by an inclined steel conveyor from which the bars are slid into the furnaces on a steel chute. There are three softening furnaces; the largest, built in 1908, holds 125 tons. They serve six desilverizing kettles, two of 55 tons, three of 65 tons, and one of 75 tons capacity. The lead is refined in two furnaces, one holding 110 tons and the other 96 tons. The zinc is oxidized by an air blast which throws the lead up a foot or more above the charge. The zincy litharge is removed and goes to the blast furnace for lead bullion.

A furnace which received its charge in the early evening is ready to be tapped when the day shift comes on the following morning; the average time for refining is eight hours. By means of this process the zinc content of the desilverized lead is reduced from 0.65 per cent. to 0.01 per cent. Of the lead which comes to the plant in the lead bullion, 94 per cent. is shipped as refined lead. Sixty hours are required for the lead to pass through the plant.

The Federal Lead Co. plant is described by Mr. Pulsifer in the *Mining and Engineering World* (XXXIX, 375). Unlike the two plants described above, this plant treats only ores. The chief materials are concentrates and slimes from the company's mill at Flat River, Mo.; they contain too little silver to pay for desilverizing. Ore hearths are used for treating the concentrates. About 50 per cent. of the lead is extracted direct, the remaining rich residue is smelted in the blast furnace with condensed flue dust and fume after these have been sintered. The metal from the hearths is liquated, cast into bars, and shipped. The ore must be rich in lead, it ought to contain 70 per cent. lead and never less than 60. The blast-furnace plant treats sintered products and hearth slag, and produces metal and matte. The former is liquated and shipped, the latter is roasted and resmelted. When a sufficient quantity of the concentrated matte has been accumulated, it is shipped to a copper smeltery. The plant uses both the Huntington-Heberlein and Dwight-Lloyd sintering systems. There are two bag houses, one 60 by 150 ft. contains 1,614 cotton bags and the other 61 by 75 ft., 820 woolen bags. The bags of both houses are 18 in. in diameter and 26 ft. long.

At the International Smelter at Tooele, Utah (L. S. Austin, *Mining and Scientific Press*, 1913, 106, 136), at present silver-lead ores are treated in blast furnaces, and the base bullion produced is shipped to East Chicago to be refined. The plant is equipped with modern methods for receiving

and sampling ore, flux, and fuel, and for distributing them to the receiving bins, sintering machines and blast furnaces. There is little shoveling except from cars which are not self-discharging. The fine ore is sintered in four 100-ton Dwight-Lloyd sintering machines and six more are to be installed in the near future.

There are two blast furnaces, each 45 by 180 in. at the tuyere-level. The smelting column is from 10 to 12 ft. high. Each furnace has 24 tuyeres. The lead and matte are so well settled in the fore-hearths that both the molten slag and slag-shells can be usually rejected. A typical analysis of the slag made is SiO_2, 32.5; FeO, 29.0; MnO, 6.0; CaO, 15; ZnO, 9.0; Al_2O_3, 4.0; S, 2.0; Pb, 0.12. The daily capacity of each furnace is 250 tons. The bag house for collecting the fumes is divided into seven bays, each containing 144 cotton bags 31 ft. long and 18 in. in diameter. The gases enter at 150 deg. F. The condensed fume containing 58 per cent. lead is burned on the floor of the dust chamber; it produces a sintered material which is added to the blast furnace charge. The matte from the blast furnaces is treated in a basic converter in the copper department; the lead is slagged and volatilized, and the fume collected in a separate bag house.

ZINC

W. R. Ingalls

Prices.—The zinc industry in 1913 was more interesting from the commercial standpoint than from the technical. The price for the metal in the United States fluctuated through a wide range. It opened above seven cents, went below five cents, reacted to about 5¾ cents, dropped back to 5⅛ cents, rallied to about 5¼ cents, and then fell back to about 5 cents (middle of December). In Europe the general tendency was downward and during the latter part of the year the London price was around £20 to £21.

The fundamental cause for the decline in price on both sides of the ocean was excessive production, leading to the accumulation of unsold or unused supplies. In America the users of spelter overbought just before the advent of 1913 and then stayed out of the market, this leading naturally to the severe decline in price. In Europe the smelters accumulated a huge unsold stock by Summer. After the London price had been under £22 for four months, restriction of output according to the terms of the convention among the European smelters was inaugurated. In the United States some restriction of output was effected by the natural pinch of adverse conditions, among which was scarcity of ore supply. The whole situation was confused. The one thing certain was that there was not much profit in smelting, nor was there in the mining of the lower grade of ore.

In December the International Zinc Convention (of European producers) was extended, after prolonged negotiations, until April 1, 1916.

The Tariff.—A great event of the year was the reduction in the tariff in the Autumn. The rate on spelter was cut from 1⅜ cents per pound to 15 per cent. ad valorem. The rate on zinc ore was reduced from one cent per pound of zinc content to 10 per cent. ad valorem on zinc content. Up to the time of writing, the reductions had not led to the importation of either spelter or zinc ore, natural market conditions having prevented the former from coming in, while of the latter no supply was offered, owing to the troubles in Mexico, which heretofore has been our chief source of foreign ore. Looking ahead broadly, the lowering of the tariff on spelter will tend to keep the European and American markets more nearly in balance, preventing excessively high or low prices in either market. The lowering of the tariff on ore will eventually unfetter our smelters with respect to supply of raw material, and may possibly lead to the establishment of a smelting industry on the Atlantic seaboard or in the Ohio valley, in the vicinity of Pittsburgh and Wheeling.

Production.—In Europe the smelters continued to receive a bountiful supply of ore from Australia. In America the smelters were aided by the production of about 10,000 tons per month at Butte, Mont., a relatively new source of supply. Another new development was that of an important mine in Tennessee. The Missouri, Wisconsin and Colorado districts about held their own.

The completion of a large smeltery in Illinois and the beginning of a large plant near Pittsburgh were further steps in the eastward migration of the smelting industry. Zinc ore generally comes to the smelter in concentrated form, besides zinc containing sulphur or lead, or both, all of which are valuable and are important objects of consumption in the vicinity of Pittsburgh. Zinc ore must always be taken to the fuel, never the opposite. Consequently it is as cheap, or cheaper, to carry the ore to Pittsburgh as to smelt in the West and carry the spelter east.

Improvements in Methods.—Technically, there were no great improvements in the arts of mining, milling and smelting zinc ore unless we rate the successful introduction of the flotation process of milling in the United States as an event of 1913. This process had for many years previous been in use at Broken Hill, N. S. W. It is giving an excessively fine product from the Butte ore, which bothers our smelters in roasting and otherwise. The art of roasting in American practice has not in recent years received the attention it should have had; nor for that matter do our smelters show any great originality in improving their distillation practice. Some novelties in Europe seem to be so far only in the uncertain stage.

A good deal of experimentation in electric smelting has continued. We know much more about the subject than we did a year ago, but the whole thing is still in its infancy and no one can yet pronounce with assurance whether it will or will not become a commercial process. (See also XXVI, *Electrochemistry.*)

The perennial idea of developing a hydrometallurgy of zinc was in evidence in 1913 as usual. At least four noteworthy experimental operations were going on. One of them, indeed, may be classed as beyond the experimental stage, the bisulphite process introduced in England.

STATISTICS OF MINERAL PRODUCTION

WORLD'S PRINCIPAL MINERAL PRODUCTS, 1900–12
(In metric tons)
(*The Mineral Industry*)

	1900	1905	1909	1910	1911	1912
METALS:						
Aluminium	7,339	16,810	24,292	23,000	26,336	19,592
Antimony[1]	4,122	7,112	12,117	12,354	12,750	.....
Copper	491,435	698,931	854,758	877,494	879,751	1,011,312
Lead	770,082	884,986	1,003,243	971,492	1,069,289	1,407,206
Manganese ore	1,589,075	2,028,560	2,621,166	2,677,731	2,265,046	2,575,743
Nickel	7,892	133,869	94,884	132,336	59,061	20,430
Pig iron	39,599,457	54,054,783	61,217,064	65,860,084	63,210,694	.....
Platinum[2]	212,900	200,768	198,330	286,952	314,223	.....
Quicksilver	3,308	3,331	3,801	3,734	4,072	.....
Steel	28,727,239	43,900,648	53,499,974	58,622,773	58,275,701	58,379,569
Tin	82,117	100,795	109,637	105,764	118,898	126,199
Zinc	465,438	563,565	784,199	815,805	881,886	976,872
NON-METALS:						
Asphaltum	322,896	353,827	477,185	511,217	601,027	.....
Coal	765,138,033	928,049,163	1,083,996,876	1,143,739,902	1,182,017,249	606,209,615
Graphite	79,939	87,047	91,135	93,461	103,438	.....
Petroleum	19,484,471	29,878,112	39,197,385	44,236,973	44,465,856	48,110,742
Phosphate rock	2,795,149	3,845,552	4,441,043	4,007,963	6,147,077	6,287,519
Salt	12,020,633	13,229,081	14,068,287	.....	12,653,203	.....
Sulphur	581,282	830,609	817,608	.....	771,958	1,157,847

[1] Figures are for Austria, China, France, Hungary, Italy and Japan.
[2] Troy ounces. Statistics from *Mineral Resources of the United States.*

MINERAL PRODUCTION BY PRINCIPAL COUNTRIES, 1900–12

(In metric tons)

The Mineral Industry

	1900	1905	1909	1910	1911	1912
Coal						
Australasia	7,599,269	8,255,250	11,257,898	12,247,734	12,096,030	12,145,694
Austria-Hungary	39,027,929	40,725,000	39,842,749	38,006,840	49,089,892	.....
Belgium	23,462,817	21,844,200	23,561,125	23,127,230	23,125,140	22,983,460
France	33,404,298	36,048,264	37,971,858	38,570,473	39,350,041	41,308,508
Germany	149,788,256	173,663,774	217,322,270	221,986,376	234,259,061	259,434,500
Japan	7,429,457	11,895,000	14,019,626	14,794,208	17,632,710	.....
Russia	14,759,866	17,120,000	24,083,000	24,572,403	16,678,280	.....
United Kingdom	228,772,886	239,888,928	263,774,822	264,505,207	276,332,960	257,136,000
United States	243,414,164	351,120,625	402,981,688	445,816,040	455,720,550	529,570,391 (*b*)
Other countries	17,879,289	27,468,122	35,422,502	58,805,832	29,571,624	28,704,780
Copper						
Africa	6,828	7,442	15,185	15,449	17,252	16,333
Australasia	23,368	34,483	34,952	40,962	42,512	47,774
Austria-Hungary	1,377	1,346	6,218	2,276	2,566	4,024
Bolivia	2,134	2,032	2,032	2,540	2,950	4,681
Canada	8,595	21,595	21,626	23,810	25,570	34,213
Chile	26,016	29,126	42,726	38,346	33,088	39,204
Cuba	.....	.....	3,006	3,538	3,753	4,393
Germany	20,635	22,492	32,815	25,105	22,363	24,304
Italy	2,797	2,997	2,769	3,272	2,642	2,337
Japan	28,285	35,944	42,987	50,703	52,303	62,486
Mexico	22,473	65,449	57,230	62,504	61,884	73,617
Newfoundland	2,929	2,316	1,402	1,097	1,174	549
Norway	3,998	6,406	9,226	10,592	9,576	11,156
Peru	8,353	12,213	16,257	27,375	28,500	26,483
Russia	8,128	9,515	18,035	22,670	25,747	33,550
Spain-Portugal	53,718	45,527	53,023	51,080	51,748	59,876
Sweden	457	1,385	2,032	2,032	2,032	1,524
United States	274,933	397,069	501,372	492,672	491,634	563,260
Other countries	3,194	1,595	1,865	1,423	2,560	1,248
Lead						
Australasia (*a*)	87,100	104,639	77,200	23,962	105,397	113,710
Austria	10,650	12,968	12,941	13,100	18,097	25,995
Belgium	16,365	22,885	40,306	40,715	44,308	69,310
Canada	28,648	25,391	23,295	14,967	10,791	16,226
France	15,210	24,100	26,927	20,226	23,600	40,086
Germany	121,513	152,590	167,920	159,851	161,287	200,431
Greece	16,396	13,729	14,948	16,710	14,948	17,613
Italy	23,673	19,097	22,133	14,495	16,684	21,450
Mexico	63,827	101,196	118,186	120,662	124,605	145,767
Spain	172,530	185,693	179,993	151,975	149,540	226,790
United Kingdom	35,500	28,494	34,822	32,168	28,326	26,061
United States	253,204	290,472	334,832	355,183	363,829	372,056
Other countries	5,552	5,694	5,391	7,477	7,877	4,686
Petroleum						
Dutch East Indies	.....	1,062,224	1,497,275	1,700,000	1,670,688	1,520,000
Galicia	.....	794,862	2,150,000	1,491,600	1,454,660	1,180,568
India	151,523	581,519	905,336	872,000	907,684	1,001,316
Roumania	250,000	614,870	1,263,946	1,352,300	1,544,847	1,806,942
Russia	10,524,919	7,505,637	8,037,300	8,952,793	9,167,600	9,249,600
United States	8,262,406	18,969,000	24,433,528	28,331,000	29,001,100	29,906,416
Other countries	557,112	350,000	910,000	1,328,880	750,000	800,000
Pig Iron						
Austria-Hungary	1,311,949	1,372,300	1,958,786	2,010,000	2,095,000	.....
Belgium	1,161,180	1,310,290	1,632,350	1,803,500	2,046,280	2,301,290
Canada	87,612	475,491	687,923	752,053	837,578	927,484
France	2,714,298	3,077,000	3,632,105	4,032,459	4,426,469	4,871,992
Germany	7,549,665	10,987,623	12,917,653	14,793,325	15,280,527	17,852,571
Italy	23,990	31,300	207,800	215,000	235,000	.....
Russia	2,296,191	2,125,000	2,871,332	2,740,000	2,865,000	.....
Spain	289,788	383,100	389,000	367,000	353,500	.....
Sweden	526,868	531,200	443,000	604,300	633,800	701,900
United Kingdom	9,003,046	9,746,221	9,818,916	10,380,723	9,874,620	.....
United States	14,009,870	23,340,258	26,108,199	27,636,687	24,027,940	30,202,568
Other countries	625,000	655,000	550,000	525,000	535,000	.....

(*a*) Pig lead smelted in New South Wales and Queensland.
(*b*) Short tons.

MINERAL PRODUCTION BY PRINCIPAL COUNTRIES—*Continued*

	1900	1905	1909	1910	1911	1912
STEEL						
Austria-Hungary	1,145,654	1,188,000	1,969,538	2,154,832	2,363,008	2,785,105
Belgium	655,199	1,023,500	1,370,000	1,449,500	1,537,000	1,954,490
Canada	23,954	403,449	766,795	835,478	880,278	.....
France	1,565,164	2,210,284	3,034,571	3,506,497	3,680,613	4,078,352
Germany	6,645,869	10,066,553	12,049,834	13,698,638	15,019,333	17,301,998
Italy	115,887	117,300	661,600	635,000	646,500	.....
Russia	2,217,752	1,650,000	2,471,000	2,350,000	2,519,000	.....
Spain	144,355	237,864	227,000	219,000	228,230	.....
Sweden	300,536	340,000	310,600	468,600	456,500	508,300
United Kingdom	5,130,800	5,983,691	5,975,734	6,476,791	6,565,321	.....
United States	10,382,069	20,354,291	24,338,302	26,512,437	24,054,918	31,751,324
ZINC						
Austria[1]	6,742	9,204	12,638	13,305	15,766	19,096
Belgium	119,315	142,555	167,100	172,578	198,230	205,940
France	36,305	43,200	49,718	51,527	55,110	65,565
Germany	155,799	198,208	219,766	227,754	235,776	271,064
Holland	6,845	13,550	19,548	20,975	22,734	23,932
Russia	5,963	7,520	7,949	8,128	9,652	11,176
United Kingdom	30,207	50,125	59,350	63,587	67,907	57,231
United States	111,794	183,014	241,730	251,348	268,378	316,368

[1] Includes Italy.

WORLD'S PRODUCTION AND COINAGE OF PRECIOUS METALS, 1841–1912
(*Report of the Director of the Mint*)

PERIOD	GOLD		SILVER		Commercial Ratio of Silver to Gold
	Fine Ounces	Value	Fine Ounces	Coining Value	
PRODUCTION:					
1841–1850 (average)	1,760,502	$36,393,000	25,090,342	$32,440,000	15.83
1851–1855 (average)	6,410,324	132,513,000	28,488,597	36,824,000	15.41
1856–1860 (average)	6,486,262	134,083,000	29,095,428	37,618,000	15.30
1861–1865 (average)	5,949,582	122,989,000	35,401,972	45,772,000	15.40
1866–1870 (average)	6,270,086	129,614,000	43,051,583	55,663,000	15.55
1871–1875 (average)	5,591,014	115,577,000	63,317,014	81,864,000	15.98
1876–1880 (average)	5,543,110	114,586,000	78,775,602	101,851,000	17.86
1881–1885 (average)	4,794,755	99,116,000	92,003,944	118,955,000	18.62
1886–1890 (average)	5,461,282	112,895,000	108,911,431	140,815,000	21.14
1891–1895 (average)	7,882,565	162,947,000	157,581,331	203,742,000	27.06
1896–1900 (average)	12,446,939	257,301,100	165,693,304	214,229,700	33.50
1901	12,625,527	260,992,900	173,011,283	223,691,300	34.68
1902	14,354,680	296,737,600	162,763,483	210,441,900	39.15
1903	15,852,620	327,702,700	167,689,322	216,810,300	38.10
1904	16,804,372	347,377,200	164,195,266	212,292,900	35.70
1905	18,396,451	380,288,700	172,317,688	222,794,500	33.87
1906	19,471,080	402,503,000	165,054,497	213,403,800	30.54
1907	19,977,260	412,966,600	184,206,984	238,166,600	31.24
1908	21,422,244	442,476,900	203,131,404	262,634,500	38.64
1909	21,965,111	454,059,100	212,149,023	274,293,700	39.74
1910	22,023,178	455,259,800	221,707,622	286,652,300	38.22
1911	22,327,088	461,542,100	225,338,194	291,346,400	38.33
1912	22,808,781	471,498,559	229,369,974	.....	.....
COINAGE:					
1873–1880 (average)	8,665,153	179,124,608	91,460,904	118,252,482	.....
1881–1890 (average)	5,898,643	121,935,781	97,881,838	126,554,296	.....
1891–1900 (average)	13,707,461	283,358,375	116,010,359	149,993,192	.....
1901	12,001,537	248,093,787	107,439,666	138,911,891	.....
1902	10,662,098	220,405,125	149,826,725	193,715,362	.....
1903	11,634,166	240,499,547	161,159,508	211,795,829	.....
1904	22,031,285	455,427,085	136,518,406	176,508,646	.....
1905	11,898,037	245,954,257	134,062,314	173,333,093	.....
1906	17,721,058	366,326,788	120,339,501	155,590,466	.....
1907	19,921,014	411,803,902	171,561,490	221,816,867	.....
1908	15,828,573	327,205,649	151,352,824	195,688,499	.....
1909	15,153,116	313,242,714	87,728,951	113,427,331	.....
1910	22,004,542	454,951,834	78,786,842	108,934,541	.....
1911	18,002,444	372,143,555	117,237,838	148,156,282	.....

MINERAL PRODUCTION OF THE UNITED STATES, 1900–12

(United States Geological Survey)

	1900	1905	1909	1910	1911	1912
METALS:						
Iron ore...long tons	.....	42,526,133	51,155,437	56,889,734	41,092,447	57,017,614
Iron, pig...long tons	13,789,242	22,992,380	25,795,471	27,303,567	23,649,547	29,726,937
Steel.....long tons	10,188,329	20,023,947	23,955,021	26,094,919	23,676,106	31,251,303
Silver...troy ounces	57,647,000	56,101,600	54,721,500	57,137,900	60,399,400	63,766,800
Gold....troy ounces	3,829,897	4,265,742	4,821,701	4,657,018	4,687,053	4,520,717
Copper.....pounds	606,117,166	888,784,267	1,002,951,624	1,080,159,509	1,097,232,749	1,243,268,720
Lead.....short tons	270,824	302,000	354,188	372,227	406,148	392,517
Zinc.....short tons	123,886	203,849	230,225	252,479	271,621	323,907
Quicksilver....flasks	28,317	30,451	21,075	20,601	21,256	25,064
Aluminum...pounds	a7,150,000	11,347,000	34,210,000	47,734,000	46,125,000	65,607,000
Antimonial lead sh.t.	.....	.....	12,896	14,069	14,078	13,552
Platinum...troy oz.	400	318	638	773	940	1,005
NON-METALS:						
Fuels:						
Bitum. coal b. sh. t.	212,316,112	315,062,785	379,744,257	417,111,142	405,907,059	450,104,982
Penn. anthracite. l.t.	51,221,353	69,339,152	72,384,249	75,433,246	80,771,488	75,322,855
Coke....short tons	.....	32,231,129	39,315,065	41,708,810	35,551,489	43,983,599
Petroleum..barrels	63,620,529	134,717,580	183,170,874	209,557,248	220,449,391	222,113,218
Struct'l Materials:						
Cement.....barrels	17,231,150	40,102,308	66,689,715	77,785,141	79,547,958	83,351,191
Lime....short tons	.....	2,984,100	3,484,974	3,505,954	3,392,915	3,529,462
Sand & gravel. sh.t.	.....	23,204,967	59,565,551	69,410,436	66,846,959	68,318,877
Abrasive Materials:						
Corundum and emery....short tons	4,305	2,126	1,580	1,028	659	992
Garnet..short tons	3,185	5,050	2,972	3,814	4,076	4,182
Pumice..short tons	.....	1,832	15,103	23,271	21,689	27,146
Chemical Materials:						
Arsenious oxide. lbs.	.....	1,507,386	2,428,000	2,994,000	6,264,000	6,282,000
Borax (crude). sh.t.	25,837	46,334	41,434	42,357	53,330	42,315
Bromine....pounds	521,444	1,192,758	569,725	245,437	651,541	647,200
Fluorspar..sh. ton.	18,450	57,385	50,742	69,427	87,048	116,545
Gypsum.short tons	594,462	1,043,202	2,252,785	2,379,057	2,323,970	2,500,757
Phosphate rock, l.t.	1,491,216	1,947,190	2,338,264	2,654,988	3,053,279	3,973,332
Pyrite....long tons	204,615	253,000	247,070	241,612	301,458	350,928
Sulphur..long tons	c 3,525	181,677	239,312	255,534	265,664	303,472
Salt.....barrels	20,869,342	25,966,122	30,107,646	30,305,656	31,183,968	33,324,808
Pigments:						
Barytes..short tons	67,680	48,235	61,945	42,975	38,445	37,478
Mineral paints. sh.t.	57,426	63,521	78,771	85,304	143,350	181,154
Zinc oxide....sh. t.	48,840	68,603	68,974	58,481		
Miscellaneous:						
Asbestos. short tons	1,054	3,109	3,085	3,693	7,604	4,403
Asphalt..short tons	54,389	115,267	228,655	260,080	364,266	449,510
Bauxite...long tons	23,184	48,129	129,101	148,932	155,618	159,865
Chromic iron ore.. long tons	140	22	598	205	120	201
Feldspar. short tons	24,821	35,419	76,539	81,102	92,700	86,572
Fuller's earth. sh. t.	9,698	25,178	33,486	32,822	40,697	32,715
Glass sand....sh. t.	.....	1,060,334	1,104,451	1,461,089	1,538,666	1,465,386
Graphite...sh. tons	3,365	24,986	8,243	4,202	3,618	2,445
Magnesite..sh. tons	2,252	3,933	9,465	12,443	9,375	10,512
Manganese ore. l. t.	11,771	4,118	1,544	2,258	2,457	1,664
Manganiferous ore. long tons	.....	.....	68,654	61,101	44,437	51,517
Mica.....pounds	11,450,283	3,176,875	9,989,582	10,606,190	8,911,201	7,297,483
Mineral waters.... gallons sold	45,276,995	46,544,361	64,674,486	62,030,125	63,788,552	62,281,201
Quartz...short tons	32,495	51,145	135,469	63,577	87,943	97,874
Talc and soapstone. short tons	27,943	40,134	81,802	79,006	81,521	92,403
Talc, fibrous..sh. t.	63,500	56,500	48,536	71,710	62,030	66,867
Thorium minerals (monazite) and zircon.....pounds	908,006	1,352,418	543,931	99,301	3,208	.....
Tungsten ore..sh.t.	40	803	1,619	1,821	1,139	1,330

a Consumption. *b* Including brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania. *c* Short tons.

VALUE OF MINERAL PRODUCTS OF THE UNITED STATES, 1900–12

(United States Geological Survey)

	1900	1905	1909	1910	1911	1912
METALS:						
Iron Ore	$66,590,504	$75,165,604	$109,964,903	$140,735,607	$86,716,575	$107,050,153
Iron, pig (*a*)	259,944,000	382,450,000	419,175,000	412,162,486	327,334,624	420,563,388
Silver	35,741,100	34,221,976	28,455,200	30,854,500	32,615,700	39,197,500
Gold	79,171,000	88,180,700	99,673,400	96,269,100	96,890,000	93,451,500
Copper	98,494,039	137,761,561	142,083,711	137,180,257	137,154,092	205,139,338
Lead	23,561,688	28,690,000	30,460,168	32,755,976	36,527,670	37,385,550
Zinc	10,654,196	24,054,182	24,864,300	27,267,732	30,964,794	44,699,166
Quicksilver	1,302,586	1,103,120	957,859	958,153	977,989	1,053,941
Aluminium	1,920,000	3,246,300	6,575,000	8,955,700	8,084,000	15,089,380
Antimonial lead	.....	.....	1,231,019	1,338,090	1,380,556	1,311,348
Platinum	2,500	5,320	15,950	25,277	40,890	45,778
NON-METALS: (*a*)						
Fuels:						
Bituminous coal	220,930,313	334,658,294	405,486,777	469,281,719	451,375,819	517,983,445
Penna. anthracite	85,757,851	141,879,000	149,181,587	160,275,302	175,189,392	177,622,626
Coke	.....	72,476,196	89,965,483	99,742,701	84,130,849	111,736,696
Petroleum	75,989,313	84,157,399	128,328,487	127,899,688	134,044,752	163,802,334
Natural gas	.....	41,562,855	63,206,941	70,756,158	74,621,534	84,563,957
Structural Mat'ials:						
Clay products	96,212,345	149,697,188	166,321,213	170,115,974	162,236,181	172,811,275
Cement	13,283,581	35,931,533	53,610,563	68,752,092	66,705,136	67,461,513
Lime	6,797,496	10,941,680	13,846,072	14,088,039	13,689,054	13,970,114
Sand and gravel	.....	11,223,645	18,336,990	21,037,630	21,158,583	23,081,555
Stone	36,970,777	63,798,748	71,345,199	76,520,584	77,108,567	78,284,572
Abrasive Materials:						
Grindstones	710,026	777,606	804,051	796,294	907,316	916,339
Corundum and emery	102,715	61,464	18,185	15,077	6,778	6,652
Garnet	123,475	148,095	102,315	113,574	121,748	137,800
Pumice	.....	5,540	33,439	94,943	88,399	86,687
Oilstones, etc	174,087	244,546	214,019	228,694	214,991	232,218
Chemical Materials:						
Arsenious oxide	.....	32,210	52,946	52,305	73,408	190,757
Borax (crude)	1,018,251	1,019,154	1,534,365	1,201,842	1,569,151	1,127,813
Bromine	140,790	178,914	57,600	31,684	110,902	136,201
Fluorspar	94,500	362,488	291,747	430,196	611,447	769,163
Gypsum	1,627,203	3,029,227	5,906,738	6,523,029	6,462,035	6,563,908
Phosphate rock	5,359,248	6,763,403	10,796,456	10,917,000	11,900,693	11,675,774
Pyrite	749,991	938,492	1,028,157	977,978	1,164,871	1,334,259
Sulphur	88,100	3,706,560	4,432,066	4,605,112	4,787,049	5,256,422
Salt	6,944,603	6,095,922	8,343,831	7,900,344	8,345,692	9,402,772
Pigments:						
Barytes (crude)	188,089	148,803	209,737	121,746	122,792	153,313
Mineral paints	644,089	1,697,130	2,373,805	2,141,654	7,842,583	10,069,588
Zinc oxide	3,667,210	5,520,240	6,156,755	5,238,945		
Miscellaneous:						
Asbestos	16,310	42,975	62,603	68,357	119,935	87,959
Asphalt	415,958	758,153	2,138,273	3,080,670	3,991,109	4,620,731
Bauxite	89,676	240,292	679,447	716,258	750,649	768,932
Chromic iron ore	1,400	375	8,300	2,729	1,629	2,753
Feldspar	180,971	226,157	424,602	502,452	579,008	520,562
Fuller's earth	67,535	214,497	301,604	293,709	383,124	305,522
Glass sand	.....	1,107,730	1,163,375	1,516,711	1,543,733	1,430,741
Graphite	197,579	318,211	345,509	335,443	288,465	207,033
Magnesite	19,333	15,221	37,860	74,658	75,000	105,120
Manganese ore	100,289	36,214	19,675	22,892	24,586	15,723
Magniferous ore	.....	.....	215,925	186,765	114,918	19,942
Mica	147,960	178,588	280,529	337,097	355,804	331,896
Mineral waters	5,791,805	6,491,251	6,894,134	6,357,590	6,837,888	6,615,671
Quartz	86,351	104,109	249,466	193,757	155,122	191,685
Talc & soapstone	383,541	637,062	862,002	684,213	1,032,732	1,050,693
Talc, fibrous	499,500	445,000	359,957	728,180	613,286	656,270
Thorium minerals (monazite), & zircon	48,805	163,908	65,282	12,006	802	.....
Tungsten ore	11,040	268,676	614,370	807,307	407,985	502,158

(*a*) "Spot" value, that is, value at the point of production.

MINERAL PRODUCTION BY STATES, 1900–12

(United States Geological Survey)

	1900	1905	1909	1910	1911	1912
METALS:						
COPPER (pounds):						
Alaska	.....	4,900,866	4,057,142	4,311,026	22,314,889	31,926,209
Arizona	118,317,764	226,854,461	291,110,298	297,250,538	303,202,532	359,322,096
California	28,511,225	16,697,489	53,568,708	45,760,200	35,835,651	31,516,471
Colorado	7,826,949	9,404,830	11,485,631	9,307,497	9,791,861	7,963,520
Idaho	290,162	7,321,585	7,096,132	6,877,515	4,514,116	7,182,185
Michigan	145,461,498	230,287,992	227,005,923	221,462,984	218,185,236	231,112,228
Montana	270,738,489	314,750,582	314,858,291	283,078,473	271,814,491	308,770,826
Nevada	407,535	413,292	53,849,281	64,494,640	65,561,015	83,413,900
New Mexico	4,169,400	5,334,192	5,031,136	3,784,609	2,860,400	29,170,400
Tennessee	.....	.....	19,207,747	16,691,777	18,965,143	18,395,256
Utah	18,354,726	54,083,506	101,241,114	125,185,455	142,340,215	132,150,052
GOLD (fine ounces):						
Alaska	395,271	722,026	984,015	787,148	774,144	831,981
Arizona	202,856	130,192	127,082	165,113	142,938	183,117
California	765,109	928,660	1,001,625	988,854	982,544	967,887
Colorado	1,394,622	1,243,291	1,056,923	992,967	926,568	906,606
Idaho	83,433	52,032	65,031	50,113	56,563	67,810
Montana	227,266	236,520	181,427	179,974	153,341	179,371
Nevada	97,050	259,246	792,752	913,015	917,605	656,722
New Mexico	40,292	12,858	12,230	23,084	30,955	36,506
Oregon	81,980	60,222	40,104	32,960	28,988	36,749
South Dakota	298,842	334,460	318,026	260,266	359,444	378,470
Utah	192,155	248,691	203,836	208,627	227,834	208,623
Washington	34,743	17,899	20,754	38,992	24,407	33,023
Other states	16,278	19,645	6,333	8,431	23,547	33,852
IRON ORE (long tons):						
Alabama	2,759,247	3,782,831	4,321,252	4,801,275	3,955,582	4,776,545
Michigan	9,926,727	10,885,902	11,900,384	13,303,906	8,945,103	12,797,468
Minnesota	9,834,399	21,735,182	28,975,149	31,966,769	23,398,406	34,249,813
New Jersey	344,247	526,271	543,720	521,832	359,721	366,822
New York	441,485	1,139,937	1,015,333	1,287,209	1,057,984	1,167,405
Pennsylvania	877,684	808,717	666,889	739,799	514,929	522,172
Tennessee	594,171	734,770	657,795	732,247	469,728	416,885
Virginia	(i)921,821	.....	837,847	903,377	610,871	412,520
Wisconsin	746,105	859,283	1,067,436	1,149,551	559,763	1,152,250
IRON, PIG (long tons):						
Alabama	1,184,337	1,604,062	1,763,617	1,969,770	1,617,150	1,987,753
Illinois	1,363,383	2,034,483	2,467,156	2,606,335	2,036,081	2,806,378
New York	292,827	1,198,068	1,733,675	1,895,018	1,537,201	1,973,090
Ohio	2,470,910	4,586,110	5,551,545	5,584,279	5,371,378	7,127,176
Pennsylvania	6,365,935	10,579,127	10,918,824	11,014,652	9,581,109	12,437,685
Tennessee	362,190	372,692	333,845	400,269	297,594	339,397
Virginia	490,617	510,210	391,134	402,625	308,789	328,961
LEAD (short tons):						
Colorado	82,137	56,638	29,326	35,685	34,840	37,621
Idaho	85,444	99,027	97,183	99,924	136,278	142,093
Missouri	.....	(c)104,058	142,650	161,659	178,868	177,069
Utah	48,044	44,996	64,534	57,081	68,248	70,156
Wisconsin	.....	.....	3,238	3,884	3,353	2,581
SILVER (fine ounces):						
Arizona	2,995,500	2,605,700	2,523,600	2,655,700	1,594,428	3,445,500
California	941,400	1,082,000	2,304,900	1,791,600	2,727,336	1,384,800
Colorado	20,483,900	12,942,800	8,846,300	8,523,000	7,530,940	7,933,100
Idaho	6,429,100	8,125,600	6,755,900	7,027,000	7,507,802	7,862,900
Michigan	102,000	253,000	217,600	262,200	507,234	543,500
Montana	14,195,400	13,454,700	12,034,500	12,282,900	11,116,778	12,524,000
Nevada	1,358,700	5,863,500	10,119,200	12,366,000	10,651,571	13,851,400
New Mexico	434,300	354,900	324,200	779,000	1,142,335	1,460,800
South Dakota	536,200	179,000	196,300	120,600	206,188	205,800
Texas	477,400	417,200	408,100	364,400	442,486	379,800
Utah	9,267,600	10,319,800	10,551,100	10,445,900	12,679,633	13,076,700
Washington	224,500	119,400	75,200	204,900	142,196	350,800
ZINC (short tons):						
Colorado	.....	6,599	20,121	23,238	42,233	60,841
Kansas	62,136	114,287	9,185	10,220	6,843	5,668
Missouri	14,741	11,844	140,676	140,652	127,540	149,557
Montana	.....	.....	4,725	12,408	22,115	14,196
New Jersey	.....	.....	16,035	20,217	15,128	16,941
Utah	.....	.....	5,960	7,221	7,004	7,756
Wisconsin	.....	.....	20,381	19,752	31,809	34,137

MINERAL PRODUCTION BY STATES, 1900–12—*Continued*

	1900	1905	1909	1910	1911	1912
NON-METALS:						
CEMENT (barrels):						
California	44,565	1,225,429	3,936,581	5,805,098	6,317,701	5,974,299
Illinois	240,442	1,545,500	4,241,392	4,459,450	4,582,341	4,299,357
Indiana	30,000	3,127,042	7,026,081	7,219,199	7,407,830	9,924,124
Iowa	.....	.....	.....	.....	1,952,590	3,228,192
Kansas	80,000	230,686	5,334,299	5,655,808	4,871,903	3,225,040
Michigan	664,750	2,773,283	3,212,751	3,687,719	3,686,716	3,494,621
Missouri	.....	3,879,542	3,445,076	4,455,589	4,114,859	4,355,741
New Jersey	1,169,212	3,654,777	4,046,322	4,184,698	4,411,890	4,246,803
New York	465,832	2,111,411	2,139,884	3,296,350	3,314,217	4,492,806
Pennsylvania	4,984,417	13,813,487	22,869,614	26,675,978	26,864,679	26,441,338
COAL (short tons):						
Alabama	8,394,275	11,866,069	13,703,450	16,111,462	15,021,421	16,100,600
Arkansas	1,447,945	1,934,673	2,377,157	1,905,958	2,106,789	2,100,819
Colorado	5,244,364	8,826,429	10,716,936	11,973,736	10,157,383	10,977,824
Illinois	25,767,981	38,434,363	50,904,990	45,900,246	53,679,118	59,885,226
Indiana	6,484,086	11,895,252	14,834,259	18,389,815	14,201,355	15,285,718
Iowa	5,202,939	6,798,609	7,757,762	7,928,120	7,331,648	7,289,529
Kansas	4,467,870	6,423,979	6,986,478	4,921,451	6,178,728	6,986,182
Kentucky	5,328,964	8,432,523	10,697,384	14,623,319	14,049,703	16,490,521
Maryland	4,024,688	5,108,539	4,023,241	5,217,125	4,685,795	4,964,038
Michigan	849,475	1,473,211	1,784,692	1,534,967	1,476,074	1,206,230
Missouri	3,540,103	3,983,378	3,756,530	2,982,433	3,836,107	4,339,856
Montana	1,661,775	1,643,832	2,553,940	2,920,970	2,976,358	3,048,495
New Mexico	1,299,299	1,649,933	2,801,128	3,508,321	3,148,158	3,536,824
Ohio	18,988,150	25,552,950	27,939,641	34,209,668	30,759,986	34,528,727
Oklahoma	1,922,298	2,924,427	3,119,377	2,646,226	3,074,242	3,675,418
Pennsylvania: Anth.	57,367,915	77,659,850	81,070,359	84,485,236	90,464,067	84,361,598
Pennsylvania: Bitum.	79,842,326	118,413,637	137,966,791	150,521,526	144,561,257	161,865,488
Tennessee	3,509,562	5,766,690	6,358,645	7,121,380	6,433,156	6,473,228
Texas	968,373	1,200,684	1,824,440	1,892,176	1,974,593	2,188,612
Utah	1,147,027	1,332,372	2,266,899	2,517,809	2,513,175	3,016,149
Virginia	2,393,754	4,275,271	4,752,217	6,507,997	6,864,667	7,846,638
Washington	2,474,093	2,864,926	3,602,263	3,911,899	3,572,815	3,360,932
West Virginia	22,647,207	37,791,580	51,849,220	61,671,019	59,831,580	66,786,687
Wyoming	4,014,602	5,602,021	6,393,109	7,533,088	6,744,864	7,368,124
COKE (short tons):						
Alabama	2,110,837	2,576,986	3,085,824	3,249,027	2,761,521	2,975,489
Colorado (*d*)	618,755	1,378,824	1,251,805	1,346,211	1,177,023	972,941
Illinois	.....	10,307	1,276,956	1,514,504	1,610,212	1,764,944
New Mexico	44,774	89,638	373,967	401,646	381,927	413,906
Ohio	72,116	277,130	222,711	282,315	311,382	388,669
Pennsylvania	13,357,295	20,573,736	24,905,525	26,315,607	21,923,935	27,438,693
Tennessee	475,432	468,092	261,808	322,756	330,418	370,076
Virginia	685,156	1,499,481	1,347,478	1,493,655	910,411	967,947
West Virginia	2,358,499	3,400,593	3,943,948	3,803,850	2,291,049	2,465,986
NATURAL GAS (values):						
California	$79,083	$133,696	$446,933	$476,697	$800,714	$1,134,456
Illinois	1,700	7,223	644,401	613,642	687,726	616,467
Indiana	7,254,539	3,094,134	1,616,903	1,473,403	1,192,418	1,014,295
Kansas	356,900	2,261,836	8,293,846	7,755,367	4,854,534	4,264,706
New York	335,367	623,251	1,222,666	1,678,720	1,418,767	2,343,379
Ohio	2,178,234	5,721,462	9,966,938	8,626,954	9,367,347	11,891,299
Oklahoma	.....	130,137	1,806,193	3,490,704	6,731,770	7,406,528
Pennsylvania	10,215,412	19,197,336	20,475,207	21,475,057	18,010,796	22,823,725
West Virginia	2,959,032	10,075,804	17,538,565	23,816,553	28,451,907	29,064,968
PETROLEUM (bbls.):						
California	4,324,484	33,427,473	55,471,601	73,010,560	81,134,391	86,450,767
Colorado	317,385	376,238	310,861	239,794	226,926	206,052
Illinois	200	181,084	30,898,339	33,143,362	31,317,038	28,601,308
Indiana	4,874,392	10,964,247	2,296,086	2,159,725	1,695,289	970,009
Kansas	74,714	*f*12,013,495	1,263,764	1,128,668	1,278,819	1,592,796
Louisiana	.....	8,910,416	3,059,531	6,841,395	10,720,420	9,263,439
New York	.....	1,117,582	1,134,897	1,053,838	952,515	874,128
Ohio	22,362,730	16,346,660	10,632,793	9,916,370	8,817,112	*j*8,969,007
Oklahoma	6,472	(*g*)	47,859,218	52,028,718	56,069,637	51,427,071
Pennsylvania	.....	10,437,195	9,290,403	8,794,662	8,248,158	7,837,948
Texas	836,039	28,136,189	9,534,467	8,899,266	9,526,474	11,735,057
West Virginia	16,195,675	11,578,110	10,745,092	11,753,071	9,795,464	12,128,962

a Includes production of Indiana. *b* Includes production of Minnesota. *c* Includes production of entire Mississippi Valley. *d* Includes production of Utah. *e* Includes production of Tennessee. *f* Includes production of Oklahoma. *g* Included with figures for Kansas. *h* Includes production for North Carolina and South Carolina. *i* Includes production of West Virginia. *j* Includes production of Michigan.

IMPORTS AND EXPORTS OF MINERAL PRODUCTS, 1900–13

(U. S. Statistical Abstract)

(000 omitted)

	1900	1905	1909	1910	1911	1912	1913
IMPORTS:							
Aluminium	.....	.....	.....	.....	.....	$2,068	$5,155
Antimony (ore and metal)	$341	$363	$815	$551	$541	693	1,134
Asbestos, unmanufactured	293	706	1,021	1,122	1,318	1,378	1,760
Manufactures of	15	53	220	269	293	336	395
Bismuth	225	305	274	316	321	305	.....
Cement	.....	1,276	712	602	324	168	122
Clays or earths	1,035	1,272	1,777	2,076	2,107	2,036	2,394
Coal	4,476	3,906	3,518	4,469	5,018	3,722	4,376
Coke	232	835	777	521	558	268	463
Copper (including ore and matte)	3,032	4,892	8,697	9,272	7,659	9,363	13,667
Manufactures of	12,457	19,942	29,378	30,938	32,013	35,843	45,909
Emery and other abrasives	201	309	285	473	502	.....	.....
Phosphates, crude	504	750	137	152	.....	.....	.....
Gold	44,573	53,648	44,003	43,339	73,607	48,936	69,194
Iron and Steel:							
Iron ore	1,497	1,670	2,714	6,763	6,691	6,119	7,035
Pig iron, including ferrosilicon	2,109	2,989	3,509	6,289	6,056	3,679	6,402
Scrap iron and steel	562	174	61	1,507	304	151	463
Manufactures of	17,806	20,346	18,869	33,213	29,623	22,720	26,771
Lead, ore and base bullion	3,128	3,616	4,436	3,643	4,038	3,834	3,397
Pig and manufactured	27	296	234	279	167	109	19
Manganese, ore and oxide of	2,693	1,661	1,243	1,592	1,453	1,292	2,196
Marble and manufactures of	812	1,308	1,230	1,552	1,477	1,384	1,393
Nickel ore and matte	1,070	1,205	2,544	3,618	3,946	4,565	6,398
Oils, mineral	220	494	329	610	2,143	3,654	9,216
Plaster rock	242	361	356	426	422	.....	.....
Platinum	1,832	1,959	1,882	3,345	3,983	5,013	5,213
Salt	625	496	428	395	401	364	377
Silver	35,256	27,484	43,954	45,217	45,937	47,050	41,268
Sulphur	1,224	1,694	2,462	2,626	3,108	3,919	4,111
Talc	1	47	93	115	83	117	.....
Tin	19,104	23,378	26,007	30,869	37,935	46,214	53,112
Zinc, ore	.....	229	1,027	1,139	937	727	831
Manufactures of	171	60	219	870	282	719	1,911
EXPORTS:							
Aluminium and manufactures of	244	175	341	666	1,330	1,144	1,046
Asbestos and manufactures of	93	234	268	312	404	520	688
Asphaltum and manufactures of	121	291	425	702	868	1,170	1,640
Cement	163	1,484	1,143	2,292	4,349	5,083	5,822
Coal	19,502	29,158	37,316	40,512	45,013	52,648	65,097
Coke	1,233	2,228	2,752	3,077	3,300	2,938	3,318
Copper, ore and matte	1,009	1,338	1,417	1,304	1,095	3,123	2,958
Manufactures of	57,852	86,225	85,290	88,004	103,813	113,958	140,164
Emery and corundum	170	347	592	872	1,347	1,654	2,331
Gold	48,266	92,594	91,531	118,563	22,509	57,328	77,762
Graphite	21	43	293	302	407	452	496
Iron and Steel:							
Iron ore	79	581	1,264	1,637	2,496	2,806	3,684
Pig iron	.....	828	816	1,353	2,475	2,658	4,141
Scrap iron and steel	749	270	407	281	794	1,196	1,435
Manufactures of	118,039	133,630	143,727	177,497	227,454	264,299	304,605
Lead, manufactures of	205	499	581	481	729	626	589
Marble and Stone:							
Unmanufactured	120	227	239	413	607	688	609
Manufactures of	1,556	1,055	956	1,034	1,082	1,179	1,625
Nickel, nickel oxide and matte	1,219	3,196	3,395	4,532	6,004	8,749	9,275
Manufactures of	.....	97	12	80	252	42	.....
Oils, mineral	75,611	79,793	105,999	99,090	98,115	112,472	113,237
Phosphate rock	6,376	6,886	8,105	7,454	9,068	8,982	4,577
Plaster of Paris	.....	16	14	6	16	20	391
Platinum	61	10	14	43	105	178	.....
Quicksilver	556	653	153	256	20	14	21
Salt	55	190	237	286	329	383	441
Silver	56,712	48,848	55,682	55,286	64,749	64,890	71,614
Tin, scrap	44	29	104	64	46	77	.....
Manufactures of	387	721	772	879	999	1,234	1,453
Zinc, ore and dross	1,205	1,765	1,099	881	949	955	690
Manufactures of	1,669	1,319	371	196	829	1,350	1,063

XXI. MANUFACTURES

WILLIAM M. STEUART

General Condition During the Year. —The activity in manufactures which characterized 1912 was maintained during the first part of 1913. Trade journals recorded a steady conservative expansion. In the West and South there was apparent a spirit of optimism as to the future, based largely on the fine crop outlook for cotton and wheat. A conservative feeling developed in the early Spring, especially in the eastern states, where manufactures predominate. The renewed war in the Balkan Peninsula put a strain on international markets, but apparently had no effect on industrial conditions in the United States. The revolution in Mexico, the flood disasters in Ohio and Indiana, and the great storms throughout the Middle West during March temporarily interrupted trade, and had some retarding effect on manufactures. The hurricanes and floods, however, created an unusual demand for rails, bridge work, and other structural material to replace flood damage. With the assembling of the extra session of Congress there developed the usual tendency for consumers to curtail their orders pending tariff revision. There appeared to be a general opinion that there never had been a more convenient time for testing the effect on American manufactures of a low tariff. The prospects of a readjustment of the tariff, however, necessarily had a retarding effect on manufactures. There was a distinct slowing down noticeable in some industries during March. By the latter part of April manufacturers were glad to accept orders for prompt delivery where they were inclined to be independent 30 days earlier. By May there was a marked falling off in orders for iron and steel and an abatement of activity. The conservatism was more pronounced in the industrial and financial East, while in the agricultural West and South there was a marked feeling of confidence. During the summer a considerable proportion of the textile machinery was idle, pending an adjustment of the tariff. There was a falling off in imports of articles free of duty, many of which formed the raw material for manufactures. The tariff law was approved Oct. 3, but its effect had, apparently, been largely discounted, and there was no appreciable change in industrial activities. In the meantime the prospect of legislation regulating banking and currency had created a tendency among banking institutions to strengthen their resources. Interest rates were somewhat higher than in 1912, loans were not so freely made, and there was a tendency on the part of manufacturers to reduce their stock of goods. There seemed to be some decline in business confidence as the year advanced, which contrasted with the optimism that was evident during the preceding year. (See also I, *American History;* and XIII, *Economic Conditions.*)

The liabilities involved in the failures in manufacturing enterprises for each quarter were considerably in excess of those for the corresponding quarter of 1912. For the first quarter this excess amounted to $4,928,510, for the second to $5,450,638, for the third to $8,085,734. While the number and magnitude of the failures in manufacturing industries were greatest during the first three months, they were too large during the entire year to be viewed with equanimity. This, with the higher money rates, tariff trouble, uncertainties of

banking legislation, and declining business did not bring the year to a propitious close. (See also XIII, *Economic Conditions.*)

FAILURES IN MANUFACTURING

(*Dun's Review*)

	Number		Liabilities	
	1912	1913	1912	1913
First quarter	1,082	1,052	$25,706,157	$30,634,667
Second quarter	846	997	19,407,964	24,858,602
Third quarter	911	973	20,579,191	28,664,925
Total, nine months	2,839	3,022	$65,693,312	$84,158,194

The probability of increased competition from manufacturers in foreign countries, following the reduction in duties, directed attention to the necessity of greater efficiency in production, and there was a noticeable increase in the demand for information concerning the requirements of foreign markets. Attention was directed more pointedly than ever before to the fact that manufacturers were too prone to be content with meeting the requirements of a domestic market which could not be expected to furnish opportunity for indefinite expansion. Technical journals and Government publications containing information concerning the requirements of the foreign markets were in greater demand. The possibility of successful competition in other countries with their domestic manufactures or with their trade in non-manufacturing countries was apparently receiving more general consideration.

Magnitude of the Manufacturing Industry.—The steady advance and at times phenomenal increase in the manufactures of the United States during the past 63 years is shown by the accompanying tabular statement.

GENERAL STATISTICS OF MANUFACTURES, 1849–1913

Year	Number of Establishments	Wage Earners (Average Number)	Primary Horse Power	Capital (000 omitted)	Wages (000 omitted)	Materials (000 omitted)	Value of Products (000 omitted)
1913 (estimate)	310,340	7,532,376	22,825,511	$23,030,421	$4,080,312	$15,056,857	$25,374,571
1909	268,491	6,615,046	18,675,376	18,428,270	3,427,038	12,142,791	20,672,052
1904	216,180	5,468,383	13,487,707	12,675,581	2,610,445	8,500,208	14,793,903
1899	207,514	4,712,763	10,097,893	8,975,256	2,008,361	6,575,851	11,406,927
1889	206,730	3,703,629	5,938,635	6,108,970	1,594,239	4,703,372	8,309,723
1879	176,887	2,545,490	3,410,837	2,697,665	873,074	3,272,088	5,093,922
1869	193,705	1,882,931	2,346,142	2,054,209	719,972	2,380,930	3,989,843
1859	119,534	1,159,859	[1]	929,145	325,949	993,545	1,764,103
1849	100,614	846,564	[1]	495,396	204,021	535,287	937,734
Per Cent. of Increase							
1904–1913	43.6	37.7	69.2	81.7	56.3	77.1	71.5
1909–1913	15.6	13.9	22.2	25.0	19.1	24.0	22.7
1899–1909	29.4	40.4	84.9	105.3	70.6	84.7	81.2
1904–1909	24.2	21.0	38.5	45.4	31.3	42.9	39.7
1899–1904	4.2	16.0	33.6	41.2	30.0	29.3	29.7
1889–1899	0.4	27.2	70.0	46.9	26.0	39.8	37.3
1879–1889	16.9	45.5	74.1	126.5	82.6	43.7	63.1
1869–1879	−8.7	35.2	45.4	31.3	21.3	37.4	27.7
1859–1869	62.1	62.3	[1]	121.1	120.9	139.6	126.2
1849–1859	18.8	37.0	[1]	87.6	59.8	85.6	88.1

Note.—Excludes statistics for all industries which are primarily or wholly of the nature of hand, building, or neighborhood industries.

[1]Not reported.

The increases in values as shown in this statement are affected by the change from currency to the gold standard between 1869 and 1879, and by the increase in prices during recent years. Prices per unit for manufactured products in 1913 were at a much higher level than for any of the preceding years. The number of wage earners employed and the horse power of the engines, electric motors, etc., however, show a marvelous increase since 1849, when the first representative statistics were collected for the entire country.

Increase in Population and Manufactures.—A comparison of the value of manufactures with the population is necessarily affected by increase or decrease in prices. To some extent it is, therefore, misleading, but the per capita values and percentages of increase in population and value of manufactured products given in the following statement for the years 1850 to 1913, show, in a general way, that the manufactures of the country have increased at a much more rapid rate than the increase in the population:

TOTAL AND PER CAPITA VALUE OF MANUFACTURES, 1850–1913

Year	Population	Manufactures, Value of Products		Per Cent. Increase	
		Amount	Per Capita	Population	Manufactures, Value of Products
1913	97,163,330	$25,374,571,000	$261	5.6	22.7
1910	91,972,266	20,622,052,000	225	9.2	39.7
1905	84,219,378	14,793,903,000	176	10.8	29.7
1900	75,994,575	11,406,927,000	150	20.7	37.3
1890	62,947,714	8,309,723,000	132	25.5	63.1
1880	50,155,783	5,093,922,000	102	30.1	27.7
1870	38,558,371	3,989,843,000	103	22.6	126.2
1860	31,443,321	1,764,103,000	56	35.6	88.1
1850	23,191,876	937,734,000	40	.....	.....

NOTE.—Population for the decennial years is the census population; for 1905 and 1913 it is the estimated midyear population as of date, July 1.

Value of products of manufacture is for the calendar year preceding the population year except for 1913, which latter is estimated on basis of the average annual increase for the preceding semi-decade.

The census of population and manufactures of 1850 gave a per capita value of $40. With the exception of 1880 over 1870, when the per capita value was affected by the change from the currency to the gold standard, there was a steady, and at times a very large, increase in this value. The largest amount, $261, is shown for 1913.

The Tariff and Manufactures.—The tariff law approved Oct. 3 made a number of important reductions in the duty on the raw material used in manufactures, as well as on the finished products of many of the important industries. The free list has been greatly extended. The testimony of manufacturers and others before the Committee on Ways and Means shows a great diversity of opinion as to the effect the reduction in duties will have on domestic production. Many manufacturers contended that the cost of manufacture was so much less in European countries that any material reduction in the tariff would be destructive to their industry. Others thought the rates could be greatly reduced without serious effect. The difference in cost of production in foreign countries and the United States, however, was practically disregarded in fixing the rates of duty.

The statement on the opposite page, comparing the rates for a number of metal and textile products as fixed by the laws of 1909 and 1913. illustrates the changes that characterize the new law.

The Textile Industries.—Of the important factory industries, the textiles are among the most sensitive to tariff legislation. The new law makes radical reductions in all of the principal products of the industry. There

TARIFF RATES ON IMPORTANT METAL AND TEXTILE MANUFACTURES

	Act of 1909		Act of 1913	
	Rate	Equivalent ad valorem percent.	Rate	Equivalent ad valorem, per cent.
SCHEDULE C—*Metals and Manufactures of:*				
Pig Iron		9.03	8 per cent.	8.00
Slabs	$\frac{1}{10}$ cent per lb.	17.79	8 per cent.	8.00
Beams, girders, joists, valued above $\frac{9}{10}$ cent per lb.	$\frac{1}{10}$ cent per lb.	23.18	12 per cent.	12.00
Tin plates	1.2 cents per lb.	26.74	20 per cent.	20.00
Wire	40 per cent.	37.64	20 per cent.	20.00
Copper in plates, sheets, etc.	$2\frac{1}{2}$ cents per lb.	10.82	5 per cent.	5.00
Lead in sheets, pipes, etc.	$2\frac{3}{8}$ cents per lb.	40.70	25 per cent.	25.00
SCHEDULE I—*Cotton and Manufactures of:*				
Cotton thread		31.54		19.29
Cotton cloth		42.75		26.44
Nottingham lace window curtains, nets, nettings, etc.		52.04	35, 40 and 45 per cent.	35, 40 and 45
Clothing, ready-made	50 per cent.	50.00	30 per cent.	30.00
Shirt collars and cuffs	45 cents per doz. plus 15 per cent.	64.03	25 per cent.	25.00
Handkerchiefs		59.27	30 per cent.	30.00
Stockings, hose and half-hose		75.38	40 and 50 per cent.	40 and 50
Underwear of every description		60.28	25 per cent.	25.00
Cotton table damask	40 per cent.	40.00	25 per cent.	25.00
SCHEDULE J—*Flax, hemp, and jute, and manufactures of:*				
Flax, not hackled or dressed	$22.40 per ton	7.21	$11.20 per ton	3.67
Hemp, not hackled or dressed	$22.50 per ton	10.45	$11.20 per ton	6.40
Single jute yarns not finer than 5 lea or number	1 cent per lb. plus 10 per cent.	26.90	15 per cent.	15.00
Cables or cordage of hemp, tarred or untarred	2 cents per lb.	17.83	1 cent per lb.	9.23
Hose, hydraulic or flume	15 cents per lb.	15.37	7 cents per lb.	9.23
Oilcloths for floors		44.29	20 per cent.	20.00
Handkerchiefs composed of flax, hemp, etc.	50 per cent.	50.00	35 per cent.	35.00
All woven fabrics, n. s. p. f.	45 per cent.	45.00	40 per cent.	40.00
SCHEDULE K—*Wool and Manufactures of:*				
Raw wool		43.61	Free	
Yarns		79.44	20 per cent.	20.00
Blankets		72.69	25 per cent.	25.00
Flannels for underwear		93.29	25 and 35 per cent.	25 and 35
Women's and children's dress goods		99.70	35 per cent.	35.00
Ready-made clothing and wearing apparel		79.56	35 per cent.	35.00
Webbings, suspenders, braces, etc	50 cents per lb. plus 60 per cent.	82.07	35 per cent.	35.00
Aubusson, Axminster, etc., carpets	60 cents per sq. yd. plus 40 per cent.	64.62	35 per cent.	35.00
Saxony, Wilton, etc., velvet carpets	60 cents per sq. yd. plus 40 per cent.	69.38	30 per cent.	30.00
Brussels carpets	44 cents per sq. yd. plus 40 per cent.	69.45	25 per cent.	25.00
Tapestry velvet carpets	40 cents per sq. yd. plus 40 per cent.	62.05	30 per cent.	30.00
Tapestry Brussels carpets	28 cents per sq. yd. plus 40 per cent.	88.53	20 per cent.	20.00
SCHEDULE L—*Silk and Silk Goods:*				
Silk, partly manufactured	35 cents per lb.	21.01	15 per cent.	15.00
Spun silk or Schappe silk yarn		37.09	35 per cent.	35.00
Sewing silk, twist, floss, etc.		25.00	15 per cent.	15.00
Silk goods, n. s. p. f., woven in the piece		54.89		50.00
Handkerchiefs or mufflers, hemstitched	60 per cent.	60.00	50 per cent.	50.00
Ribbons, n. s. p. f., bandings	50 per cent.	50.00	40 per cent.	40.00
Artificial silk yarns		41.75	35 per cent.	35.00

PRINCIPAL TEXTILE INDUSTRIES, 1909

	Total for the Industry	Establishments Engaged Primarily in Manufacturing							
		Cotton Goods Including Cotton Small Wares	Woolen, Worsted, and Felt Goods, and Wool Hats	Carpets and Rugs, Other than Rag	Hosiery and Knit Goods	Silk and Silk Goods, Including Throwsters	Cordage and Twine and Jute and Linen Goods	Shoddy	Dyeing and Finishing Textiles
Number of establishments	5,352	1,324	985	139	1,374	852	164	88	426
Persons engaged in the industry	915,858	387,771	175,176	34,706	136,130	105,238	27,214	2,320	47,303
Proprietors and firm members	3,522	377	732	134	1,134	664	80	83	318
Salaried employees	31,208	8,514	5,722	1,265	5,721	5,537	1,314	196	2,939
Wage earners (average number)	881,128	378,880	168,722	33,307	129,275	99,037	25,820	2,041	44,046
Primary horse power	2,099,050	1,296,517	362,209	38,553	103,709	97,947	78,549	13,820	107,746
Capital	$1,841,242,131	$822,237,529	$430,578,574	$75,627,010	$163,641,171	$152,158,002	$76,020,366	$6,886,825	$114,092,654
Expenses	1,488,817,311	554,221,688	387,999,515	62,311,110	175,729,583	177,175,719	56,076,532	6,656,311	68,647,853
Salaries	49,123,634	14,411,758	10,097,157	2,200,042	7,691,457	7,527,279	1,862,546	289,685	5,034,710
Wages	335,398,736	132,859,145	72,426,619	15,536,050	44,740,223	38,570,085	9,132,999	906,691	21,226,924
Materials	992,635,299	371,009,470	282,878,039	39,563,004	110,241,053	107,766,916	40,914,810	5,000,706	35,261,301
Miscellaneous	111,659,642	35,941,315	22,596,700	5,003,014	13,056,850	23,311,439	4,166,177	459,229	7,124,918
Value of products	1,684,636,499	628,391,813	435,978,558	71,188,152	200,143,527	196,911,667	61,019,986	7,446,364	83,556,432
Value added by manufacture	692,001,200	257,382,343	153,100,519	31,625,148	89,902,474	89,144,751	20,105,176	2,445,658	48,295,131

will undoubtedly be a large increase in the imports and a resulting keener competition. The magnitude of the interests affected is shown by the accompanying statement, which summarizes the latest official statistics for the different branches of the industry.

When operating at full capacity the industry as a whole gives employment in its factories to approximately a million persons, and its annual products are valued at a billion dollars. Probably as many more persons depend upon the products, directly or indirectly, in the mercantile transactions and in the manufacture of the fabrics into clothing and other finished articles. In a measure, to offset the effect of the reduction in the duties on the finished products, practically all of the material used in the textile industry is placed on the free list.

The aggregate quantity of textile fibers produced in the United States in 1909 was 5,497,285,000 lbs., as compared with 4,055,298,000 lbs. in 1889, the increase for the 20-year period being 1,441,987,000 lbs., or 36 per cent. During the same period the imports of textile fibers increased from 557,688,000 lbs. to 1,054,545,000 lbs., or 89 per cent.; the exports from 2,489,050,000 lbs. to 3,241,824,000 lbs., or 30 per cent., and the consumption in the United States from 2,021,224,000 lbs. to 3,740,368,000 lbs., or 85 per cent.

The United States uses more than one-fifth of the world's production of raw silk, ranking next to China in the consumption of this product. The increasing importance of manila and sisal for use in the manufacture of cordage and twine is noteworthy. By far the greater portion of the jute imported is used in the manufacture of gunny bagging or burlap, large quantities of which are used for covering cotton bales, for grain sacks, and for various other purposes.

The cotton-goods industry is one of the oldest and most typical factory industries in the United States. In 1909 it ranked third among the industries of the country in number of wage earners, being exceeded only by the lumber industry and the foundry and machine-shop industry, and seventh in value of products and in value added by manufacture.

PRODUCTION, IMPORTS, EXPORTS AND CONSUMPTION OF TEXTILE FIBERS
1889–1912

Fiber	Year	Production, pounds (000 omitted)	Imports		Exports, Including Re-exports		Consumption pounds (000 omitted)
			Quantity, pounds (000 omitted)	Value (000 omitted)	Quantity, pounds (000 omitted)	Value (000 omitted)	
Cotton	1912	7,156,508	121,852	$22,987	4,563,167	$547,487	2,590,913
	1909	5,157,691	86,038	15,816	3,212,240	451,746	2,465,226
	1899	4,729,968	67,399	7,961	3,127,607	243,158	1,923,705
	1889	3,736,256	8,606	1,393	2,472,048	251,008	1,193,399
Wool	1912	304,043	195,293	35,580	4,423	824	494,913
	1909	328,111	263,928	51,221	4,055	869	559,851
	1899	272,191	155,928	20,261	7,903	1,219	412,746
	1889	295,779	105,431	15,264	3,520	590	374,103
Silk, including cocoons	1912	.....	26,208	82,203	134	467	26,074
	1909	.....	20,412	65,439	93	336	17,729
	1899	.....	11,289	44,568	119	453	9,761
	1889	.....	6,106	23,374	19	78	6,377
Flax	1912	[1] 4,000	27,823	3,950	.....	.....	31,823
	1909	4,000	28,585	3,536	121	13	28,064
	1899	840	15,606	1,646	11	.....	16,981
	1889	241	18,028	2,188	.....	.....	18,269
Hemp	1912	[1] 7,483	17,165	1,484	168	13	24,480
	1909	7,483	14,388	1,040	925	59	19,724
	1899	11,751	7,616	450	336	17	25,589
	1889	23,022	81,964	7,342	556	54	104,430
Jute	1912	.....	280,871	9,281	423	22	280,448
	1909	.....	152,667	3,728	876	30	260,379
	1899	.....	230,032	3,956	60	1	206,250
	1889	.....	202,494	3,250	939	11	201,555
Manila	1912	.....	165,364	12,630	6,447	520	158,917
	1909	.....	208,887	10,517	19,542	1,345	131,612
	1899	.....	95,478	7,172	2,287	246	123,242
	1889	.....	[2]	[2]	[2]	[2]	[2]
Sisal	1912	.....	344,667	17,804	18,632	1,209	326,035
	1909	.....	223,924	11,441	2,191	128	203,849
	1899	.....	172,303	11,782	3,120	206	146,353
	1889	.....	[3]	[3]	[3]	[3]	[3]
Other vegetable fibers	1912	.....	76,010	3,930	2,421	124	73,589
	1909	.....	55,716	2,157	1,781	89	53,935
	1899	.....	37,410	1,366	4,151	202	33,259
	1889	.....	135,059	7,762	11,968	737	123,091

[1] Same as 1909. No later data available. [2] Included under "Hemp." [3] Included under "Other vegetable fiber."

Cotton forms more than two-thirds of the total amount of fiber used annually in the textile industry. From the standpoint of manufactures it is the most important single agricultural crop of the United States, and the capital invested in its production probably exceeds that of the factories. The crop of 1912 was valued at $920,630,000 and the amount added to this raw material by the various manufacturing processes in the factories and oil mills more than doubled its value. Making allowance for the seed used for planting, the annual products of manufactures, consisting in whole or part of material derived from the American cotton crop, reach a value of $1,890,000,000. A large portion of this value is created by mills in foreign countries, as more than half the cotton crop is exported. But the fact that the United States commands the raw material gives us a great advantage if the reduction in the tariff results in a keener competition. The consumption in domestic mills for the year ending Aug. 31, 1913, amounted to 5,786,330 bales. Of this amount, 2,960,518 was used by the mills in the cotton-growing states, and 2,825,812 bales by the mills in all other states. During recent years the proportion consumed in the southern states has been constantly increasing, while the proportion consumed in the northern and western states has decreased. The prosperity of the cot-

ton manufacture, and to some extent of other branches of the textile industry, depends upon the magnitude of the cotton crop. During the past eight years the annual supply of cotton in the United States, including stocks carried over from the preceding year, has varied from 12,188,000 bales for the year 1909-10 to 17,896,000 bales for 1911-12. The supply for 1912-13 was 16,226,000 bales. The estimated production for 1913-14, issued by the Department of Agriculture, is 13,677,000 bales, as compared with 13,703,000 bales for the preceding year. The exports indicate a constantly increasing demand from foreign manufactures for American cotton. More than half the supply for 1912-13 was exported, and if the production of foreign mills is increased during the coming year, larger amounts will be exported, as the statistics for the world's production and consumption indicate a considerable reduction in the world's stocks of cotton.

The Iron and Steel Industries.—In the iron and steel industry practically all of the heavy products are on the free list, and the duty on secondary products has been greatly reduced. This will affect directly and indirectly a great variety of industries.

IRON AND STEEL AND ALLIED INDUSTRIES, 1909

Industry	Number of Establishments	Wage Earners (average number)	Wages (000 omitted)	Value of Products (000 omitted)	Value Added by Manufacture (000 omitted)
Total	17,289	1,025,044	$633,602	$3,163,126	$1,361,020
Industries making crude iron and steel and rolled products	654	278,505	187,807	1,377,151	399,013
Iron and steel, blast furnaces	208	38,429	24,606	391,429	70,791
Iron and steel, steel works and rolling mills	446	240,076	163,200	985,722	328,221
Industries making other relatively simple products	500	54,425	30,783	220,332	66,303
Horseshoes	19	293	166	1,014	658
Iron and steel, bolts, nuts, washers, and rivets	108	11,345	5,793	24,484	11,680
Iron and steel, doors and shutters	29	1,601	874	3,005	1,722
Iron and steel forgings	172	8,168	5,003	20,293	10,053
Iron and steel, nails and spikes, cut and wrought	57	2,765	1,352	8,191	4,219
Iron and steel pipe, wrought	28	6,817	3,963	30,886	7,944
Tin plate and terneplate	31	5,352	3,314	47,969	6,080
Wire	56	18,084	10,315	84,486	23,943
Industries making more highly elaborated products	16,135	692,114	415,012	1,565,641	895,704
Cash registers and calculating machines	50	7,465	5,311	23,708	20,155
Cutlery and tools, not elsewhere specified	959	32,996	17,581	53,265	34,986
Files	57	4,158	1,977	5,691	4,095
Foundry and machine-shop products	13,253	531,011	321,520	1,228,475	688,464
Locomotives, not made by railroad companies	16	14,909	8,914	31,582	16,522
Pens, steel	5	699	230	576	481
Pumps, not including steam pumps	102	2,136	1,258	5,582	3,096
Safes and vaults	42	3,343	2,071	8,490	5,048
Saws	96	4,832	2,856	11,535	6,623
Scales and balances	87	3,559	2,186	8,785	6,081
Screws, machine	43	1,667	970	3,014	1,853
Screws, wood	11	3,464	1,453	6,198	3,890
Sewing machines, cases, and attachments	47	19,296	11,102	28,262	16,807
Springs, steel, car and carriage	54	3,196	1,852	9,005	4,278
Stoves and furnaces, including gas and oil stoves	576	37,130	22,944	78,853	49,515
Typewriters and supplies	89	9,578	6,221	19,718	15,641
Vault lights and ventilators	37	327	227	956	618
Wirework, including wire rope and cable	611	12,348	6,331	41,937	17,544

The United States has natural advantages for the manufacture of iron and steel not possessed, to the same degree, by any other nation. The supply of ore and coking coal is practically unlimited, and in many localities they are in close proximity. The industry is exceptionally well or-

METALS AND METAL PRODUCTS OTHER THAN IRON AND STEEL, 1909

Industry	Number of Establishments	Wage Earners (average number)	Wages (000 omitted)	Value of Products (000 omitted)	Value Added by Manufacture (000 omitted)
Total	8,750	248,785	$146,333	$1,238,251	$347,236
Metals	1,409	74,627	49,411	811,003	132,222
Babbitt metal and solder	109	897	560	19,767	3,498
Brass and bronze products	1,021	40,618	23,677	149,989	50,760
Gold and silver, reducing and refining	62	456	345	23,611	1,628
Lead, bar, pipe, and sheet	33	802	510	9,144	1,733
Smelting and refining, copper	38	15,628	13,395	378,805	45,274
Smelting and refining, lead	28	7,424	5,430	167,405	15,442
Smelting and refining, zinc	29	6,655	4,210	34,205	8,975
Smelting and refining, not from the ore	89	2,147	1,281	28,072	4,909
Metal products	6,834	169,994	94,482	415,400	210,089
Clocks and watches, including cases and materials	120	23,857	12,944	35,196	24,066
Copper, tin, and sheet-iron products	4,228	73,615	39,500	199,824	87,241
Gas and electric fixtures and lamps and reflectors	619	18,861	10,393	45,057	24,590
Gold and silver, leaf and foil	88	1,383	636	2,630	1,112
Jewelry	1,537	30,347	18,357	80,349	43,675
Needles, pins, and hooks and eyes	49	4,638	2,064	6,694	4,365
Silverware and plated ware	183	16,610	10,281	42,228	23,896
Tin foil	10	683	303	3,418	1,142
Related industries	507	4,164	2,439	11,847	4,924
Electroplating	461	2,717	1,652	4,509	3,304
Galvanizing	46	1,447	786	7,338	1,619

ganized, and in good shape to meet competition. In fact, the domestic products are now competing successfully with foreign manufactures in the world's markets. The development of the domestic manufacture of the heavy products is shown by the fact that since 1898 the production of ingots and castings has increased from 8,932,857 to 31,251,303 gross tons. This tonnage involves the re-use in the steel furnaces of steel scrap, the croppings from the ends of ingots and billets, the trimmings from plates, etc., and hence in late years it greatly exceeds the tonnage of pig iron consumed in its manufacture. During the same period the production of pig iron increased from 11,773,934 to 29,726,937 tons. The blast furnaces of the country now have a daily capacity of over 100,000 tons.

The improvement in the efficiency of the American furnaces is indicated by the increased production of pig iron per wage earner. This increased from 265 tons in 1889 to 668 tons in 1909. For the large furnaces, those producing over 500,000 tons of iron each, the average production per annum per wage earner exceeds 1,100 tons. During the past 40 years the population of the country has increased by about 140 per cent., while the pig iron production has increased 1,300 per cent. The per capita production increased from 0.0475 to 0.2789 tons. The production for 1912 amounted to 29,726,937 tons, and the preliminary reports for 1913 indicate that the production will exceed that of any prior year, the output for the first half of 1913 being 16,488,602 tons.

Practically three-fourths of the pig iron is consumed in the steel works, the balance being used in foundries and for miscellaneous purposes. The annual products of the steel works and rolling mills of the country now amount to $986,000,000. The steel plants have a daily capacity of 110,000 tons and the steel production under normal conditions is approximately 24,000,000 tons. The output of the plants is composed of a vast variety of products, extending from the heavy blooms, billets, and slabs to highly finished instruments. Of the heavy finished products, rails and structural shapes are among the most important. The annual production of rails has increased from 2,385,682 tons in 1900 to 3,327,915 tons in 1912, while that of structural shapes increased from 815,161 to 2,846,487 tons.

Metals Other than Iron and Steel.—The tariff schedule of metals and

manufactures thereof affects many industries dependent upon metals other than iron and steel. There are approximately 9,000 establishments engaged in the manufacture of these other metals, or of products in which they form the raw material. These establishments have a capital of about $900,000,000, they give employment to 250,000 wage earners and their annual products are valued at $1,250,000,000.

Of these industries the production of copper is one of the most important. The duty on copper in plates, sheets, etc., is reduced from 10.82 to five per cent. ad valorem. The facilities for the manufacture of this metal in the United States are unsurpassed. The total annual production has increased from 606,117,166 lbs. in 1900 to 1,243,268,720 lbs. in 1912, and it seems impossible that any change in the tariff can seriously affect the manufacture or the industries depending directly upon its production. The use of copper, and especially of copper

MANUFACTURES OF FOOD PRODUCTS, 1909

Industry	Number of Establishments	Wage Earners (average number)	Wages (000 omitted)	Value of Products (000 omitted)	Value Added by Manufacture (000 omitted)
Total	55,364	411,575	$208,663	$3,937,617	$749,814
Animal products	10,561	119,385	67,069	1,700,128	220,721
Butter, cheese, and condensed milk	8,479	18,431	11,081	274,557	39,011
Butter, reworking	24	295	185	8,200	776
Canning and preserving	398	9,926	3,565	28,328	10,846
Lard, refined	7	399	179	10,326	695
Oleomargarine	12	606	413	8,147	1,650
Slaughtering and meat packing	1,641	89,728	51,644	1,370,568	167,740
Vegetable products	44,803	292,190	141,593	2,237,489	529,093
Beet sugar	58	7,204	4,808	48,122	20,857
Bread and other bakery products	23,926	100,216	59,351	396,864	158,831
Canning and preserving	3,369	50,042	15,516	128,772	44,431
Chocolate and cocoa products	27	2,826	1,268	22,390	6,867
Coffee and spice, roasting and grinding	607	7,490	3,676	110,532	27,327
Confectionery	1,944	44,638	15,615	134,795	53,645
Cordials and sirups	117	1,095	503	9,662	4,320
Flavoring extracts	420	1,229	557	8,828	4,369
Flour-mill and gristmill products	11,691	39,453	21,464	883,584	116,007
Food preparations	1,213	14,968	7,042	125,331	41,389
Glucose and starch	118	4,773	2,666	48,799	11,900
Peanuts	46	1,949	351	9,736	1,124
Rice, cleaning and polishing	71	1,239	563	22,371	2,870
Sugar and molasses	214	4,127	1,862	30,620	9,325
Sugar, refining, not including beet sugar	19	9,399	5,620	248,628	22,340
Vinegar and cider	963	1,542	723	8,447	3,483

MANUFACTURES OF SUGAR, 1909

	Total	Beet Sugar Industry	Cane Sugar and Molasses Industry	Cane Sugar Refining Industry
Number of establishments	291	58	214	19
Persons engaged in the industry	24,047	8,389	5,313	10,345
Proprietors and firm members	205	1	198	6
Salaried employees	3,112	1,184	988	940
Wage earners (average number)	20,730	7,204	4,127	9,399
Primary horse power	217,805	57,202	122,189	38,414
Capital	$282,795,499	$129,628,938	$37,925,770	$115,240,791
Expenses	304,831,067	37,353,066	26,165,526	241,312,475
Salaries	4,161,030	1,769,454	737,421	1,654,155
Wages	12,292,168	4,808,446	1,862,751	5,620,971
Materials	274,847,974	27,265,170	21,294,844	226,287,960
Miscellaneous	13,529,895	3,509,996	2,270,510	7,749,389
Value of products	327,371,780	48,122,383	30,620,738	248,628,659
Value added by manufacture	52,523,806	20,857,213	9,325,894	22,340,699

wire, in the electrical industries has greatly stimulated the output. The annual production of copper wire and wire products now exceeds 160,000 tons.

The Manufacture of Cement.—This product has also been placed on the free list. It is one of the industries that has had a phenomenal growth during recent years. Its development in the United States probably surpasses that of any other important manufacturing interest in the world's history. The annual production has increased from 17,231,150 bbl. in 1900 to 85,925,651 bbl. in 1912. The manufacture is confined almost entirely to Portland cement, and there appears to be no limit to its utilization, as new avenues for its profitable employment are constantly being opened. It has become one of the world's fundamental industries, entering into building opeartions of every character, into the making of streets, sidewalks, and roadways, the building of bridges, barges, and many structures where strength and endurance are required.

Food Products.—All of the substantial food products, except sugar, are on the free list. The duty on sugar was reduced from 48.54 to 36.25 per cent. ad valorem, effective March 1, 1914, and it is to go on the free list May 1, 1916.

The Manufacture of Sugar.—The reduction of 12.29 per cent. in the duty on sugar, and the probability of

LUMBER AND ITS REMANUFACTURES, 1909

Industry	Number of Establishments	Wage Earners (average number)	Wages (000 omitted)	Value of Products (000 omitted)	Value Added by Manufacture (000 omitted)
Total	48,533	907,514	$422,764	$1,582,522	$867,948
Lumber and timber products	40,671	695,019	318,739	1,156,128	648,011
Manufactures of lumber	7,733	209,461	102,705	411,422	214,741
Baskets and rattan and willow ware	456	4,664	1,747	5,695	3,359
Billiard tables and materials	54	1,495	1,010	5,877	2,509
Boxes, cigar	274	6,115	2,234	8,491	4,178
Coffins, burial cases, and undertakers' goods	284	9,339	4,632	24,525	12,561
Cooperage and wooden goods	1,693	26,269	11,714	60,248	23,320
Cork cutting	62	3,142	1,098	5,939	2,505
Furniture and refrigerators	3,155	128,452	65,617	239,886	131,111
Lasts	60	1,728	1,202	4,158	2,834
Looking-glass and picture frames	437	6,021	3,260	13,475	7,950
Matches	26	3,631	1,389	11,353	6,754
Pulp goods	14	783	377	1,770	799
Rules, ivory and wood	9	109	51	143	112
Show cases	149	3,390	2,016	7,167	4,027
Wood carpet	10	184	138	490	262
Wood, turned and carved	1,050	14,139	6,213	22,198	12,454
Products of chemical processes	129	3,034	1,319	14,971	5,195
Charcoal	76	631	253	872	424
Wood preserving	53	2,403	1,066	14,098	4,770

PULP AND PAPER INDUSTRIES, 1909

Industry	Number of Establishments	Wage Earners (average number)	Wages (000 omitted)	Value of Products (000 omitted)	Value Added by Manufacture (000 omitted)
Total	34,828	415,990	$242,062	$1,179,285	$728,046
Paper: Paper and wood pulp	777	75,978	40,804	287,656	102,214
Manufactures of paper	1,617	65,696	25,257	133,630	63,380
Bags, paper	74	3,212	1,306	15,697	5,343
Boxes, fancy and paper	949	39,514	14,015	54,450	28,733
Card cutting and designing	68	525	237	1,031	657
Labels and tags	96	2,313	1,122	4,669	2,759
Paper goods, not elsewhere specified	403	19,211	8,168	55,170	23,921
Paper patterns	27	921	406	2,610	1,964

THE PRINTING INDUSTRIES, 1909.

	Total for the Industry	Establishments Primarily Engaged in					
		Printing and Publishing, Book and Job	Printing and Publishing, Music	Printing and Publishing, Newspapers and Periodicals	Bookbinding and Blank-book Making	Engraving, Steel and Copper Plate Industry, Plate Printing	Lithography
Number of establishments	31,445	10,708	178	18,871	1,054	316	318
Persons engaged in the industry	388,466	141,937	1,800	196,620	23,698	6,479	17,932
Proprietors and firm members	30,424	10,778	162	17,890	1,066	330	198
Salaried employees	99,608	22,472	900	70,058	2,694	823	2,661
Wage earners (average number)	258,434	108,687	738	108,672	19,938	5,326	15,073
Primary horse power	297,763	97,546	365	173,889	10,099	2,732	13,132
Capital	$588,345,708	$202,662,435	$3,591,381	$314,740,917	$22,935,362	$7,242,200	$37,173,413
Expenses	619,158,045	212,598,947	4,498,709	336,376,872	27,530,441	7,878,383	30,274,693
Salaries	103,458,251	25,040,439	884,725	69,298,932	3,179,379	1,152,077	3,902,699
Wages	164,628,180	66,521,316	438,928	74,401,593	9,676,270	3,387,889	10,202,184
Materials	201,774,590	77,650,547	986,202	97,359,605	11,629,906	2,217,599	11,930,731
Miscellaneous	149,297,024	43,386,645	2,188,854	95,316,742	3,044,886	1,120,818	4,239,079
Value of products	737,876,087	250,925,934	5,575,903	406,090,122	31,742,416	9,432,479	34,109,233
Value added by manufacture	536,101,497	173,275,387	4,589,701	308,730,517	20,112,510	7,214,880	22,178,502

the product being placed on the free list, will have a very serious effect on the manufacture. The refining of sugar, however, will in all probability be greatly stimulated.

The world's annual production of cane sugar approximates 8,400,000 tons of 2,240 lbs. Of this, British India and Java produce about 3,300,000 tons, practically all of which is consumed locally. The commercial crop, therefore, approaches 5,100,000 tons. The production of the Continental United States, Hawaii, and Porto Rico amounts to about 1,100,000 tons. Our principal competitor is Cuba, for which the annual production approximates 1,800,000 tons. The production of the Continental United States has increased from 118,000 tons in 1860 to 316,000 in 1912. In that year there were 210 sugar factories in Louisiana, of which 23 produced syrup only. As a rule, the owners of the factory are also owners of large plantations surrounding it. Before the Civil War practically every planter had his own sugar mill, the number of these mills in 1849 in Louisiana alone being 1,490. The changes in labor conditions, cost of machinery necessary to fit up a modern plant, the necessity of improving the methods of transporting the cane to the mills, and the economies possible in large mills have resulted in a concentration of the industry into fewer and larger establishments. Most of the establishments are well organized in conformity with modern methods. In the aggregate, they represent an enormous investment, and a large rural population depends upon them.

The beet sugar industry is practically confined to the central and western states. The world's annual production of beet sugar amounts to 6,300,000 tons of 2,240 lbs. Of this total, 5,860,000 tons are produced in Europe and 450,000 tons in the United States. It is one of the best organized industries of the country, but the witnesses before the Committee on Ways and Means were practically unanimous in the opinion that any material reduction in the duties would be disastrous not only to the beet but to the cane sugar manufacture.

Lumber.—Lumber is another important product of manufacture placed

on the free list. Since 1899 the annual cut of lumber has varied from 33,200,000,000 to 44,500,000,000 ft. The production for 1912 amounted to 39,158,414,000 ft. In 1850 the northeastern states produced more than half the lumber manufactured. The center of the industry shifted to the Lake states and now the largest quantities are obtained from the Pacific Coast and southern states. Washington produced the largest amount, 4,099,775,000 ft. in 1912, followed by Louisiana with 3,876,211,000 ft., Mississippi with 2,381,898,000 ft., and North Carolina with 2,193,308,000 ft.

By far the largest part of the lumber is used in building operations, but large quantities are consumed in manufactures. The statistics in the following table show the importance of the manufactures using lumber and other forest products as material:

Wood, Pulp and Paper.—The new tariff law places all wood pulp on the free list, and makes a considerable reduction in the duty on paper. While the number of pulp and paper mills in the United States has remained practically stationary during the past decade, the magnitude of their operations has more than doubled. The manufacture of pulp now consumes annually more than 4,000,000 cords of wood. The reduction in the revenue will affect not only the pulp, paper, and printing industries, but numerous other branches of manufactures using paper as a material, or producing materials used in the printing trades.

Printing and Publishing.—The printing and publishing of newspapers, periodicals, and books is, of course, absolutely dependent upon the supply of paper. For a long time a number of publications have been persistent in the agitation for a reduction in the duty on pulp and paper. The printing industry is a dominating factor in many activities. It is thoroughly distributed throughout the states, every city of importance, and the majority of the counties, having a newspaper.

The gross annual receipts from the advertising carried on in newspapers and periodicals now exceeds $200,000,000, while the revenue from subscriptions and sales amounts to $135,000,000. During the past decade these receipts have doubled, while the aggregate number of copies of newspapers and periodicals printed increased from 9,890,000 to 11,600,000,000. More than 161,000,000 books and pamphlets were printed in 1909. If the reduction in duty results in cheaper paper, it is probable the industry will show even greater development during the next ten years.

PATENTS AND INVENTIONS

CHARLES E. MUNROE

Patents Granted.—From the last issued report of the U. S. Commissioner of Patents it appears that the total number of applications for U. S. patents for inventions during the year ending Dec. 31, 1912, was 68,968, for designs 1,850, and for reissues 158, a total of 70,976. The number of patents of both kinds issued was 37,573 and reissued 158. Of these, 4,489 were issued to citizens of foreign countries. During the year 20,883 patents expired and 7,494 applications were forfeited for non-payment of final fees. The total number of patents issued by the United States and foreign countries from the earliest period to Dec. 31, 1912 (the foreign figures for 1912 being estimated), is 2,350,903, of which 1,059,282 have been granted by the United States.

An analysis of the data for patents issued by the United States in 1912, according to the residence of the inventor, shows the largest number, 5,103, to be issued to citizens of New York, with Pennsylvania, Illinois, Ohio, Massachusetts, New Jersey, California, Missouri and Michigan following in the order named with over 1,000 each. When measured by the ratio of population to patents granted, Connecticut stands first, with one patent to every 1,150 of population, and then, in order, the District of Columbia, California, New Jersey, Massachusetts, Illinois, Colorado, New York, Rhode Island and Ohio. The paucity

of invention in the so-called southern states, as measured by either means, is most notable, the ratio to population being, for Tennessee, 1:10,404; Georgia, 1:10,963; Arkansas, 1:11,663; Alabama, 1:11,813; North Carolina, 1:13,133; Mississippi, 1:17,793; and South Carolina, 1:18,040.

An analysis of the statistics for patents granted to citizens of foreign countries shows Germany in the lead with 1,558, followed by England with 952, Canada with 579, France with 369, Austria-Hungary with 160, Switzerland with 125, and Sweden with 102. If, however, Great Britain and its colonies be considered as a whole, the total number of patents granted its citizens was 1,810.

Every activity of the Patent Office showed an increase of from 41.6 to 123.6 per cent. for 1912 over 1899, the increase in receipts being 59.8 per cent. and in expenditures 66.8 per cent. The surplus for 1912 was $96,092.19, making a total net surplus of $7,063,925.76, which has been deposited in the Treasury of the United States from the earnings of the Patent Office.

Administration of the Patent Office. —On Aug. 21, 1912, Congress by joint resolution directed the Commission on Economy and Efficiency

to investigate fully and carefully the administration of the Patent Office with a view of determining whether or not the present methods, personnel, equipment, and building of said office are adequate for the performance of its functions, taking into consideration the present character and volume of business, and also such increase in complexity or volume as may reasonably be expected in the future, and to ascertain and recommend specially to Congress not later than Dec. 10, 1912, what changes in law, what increases in appropriations, and what additional building accommodations, may be necessary to enable the Patent Office to discharge its functions in a thoroughly efficient and economical manner, and to what extent any expenditures which may be recommended can be met by increases of Patent Office fees.

The report of the Commission has been issued as House Doc. 1110, 62d Cong., 3d sess., appearing as a large octavo volume of 624 pages, with illustrations and tables. This is probably the most systematic and exhaustive examination of the patent situation that has been made, for in its 14 chapters and 11 appendices it covers the revision of law and change of office methods; a discussion of United States and foreign patent systems; administration of the Patent Office; methods of examining applicants; interference procedure; classification division; the scientific library and search room; personnel of the office; building accommodations and office equipment; publications; term of patent and delays; fees, revenues, and expenditures; correction of errors; appeals, court of patent appeals and litigation; working of patents and compulsory license; treaties affecting patent rights; the bar; history of United States patent system; United States laws and rules of practice; German and English patent laws, with a discussion and comparison of the patent laws and procedure in Germany, England and the United States; publications of the Patent Office; statement of its business; bibliography of all important material bearing on the origin, history and growth of the Office and the system which it has evolved; and the classification of patents and printed publications. In conducting its investigations the Commission secured the views of a large number of attorneys and others practicing before the Patent Office, and of inventors, concerning certain questions submitted to it and, in addition to those appendices for which credit is given, it is evident that much of the material has been prepared by experts within or without the Office.

Following its examination the Commission submitted the following recommendations which require changes in the law:

1. That a new building specially designed, equipped, and furnished be constructed on a suitable site in the city of Washington, for the exclusive use of the United States Patent Office.
2. That the number of officers and employees of the United States Patent Office be increased, and the increases and readjustments of salaries be made, as shown in detail in this report, involving an increase of 36 in the number of employees and a total increase of $236,550 in the pay roll.
3. That the Commissioner of Patents be the head of the Patent Office; that his duties be the same as are now prescribed by law, excepting that he be relieved from the consideration of cases on appeal; that he be aided by an Assistant Commissioner and seven supervising examiners in the administrative work, including control of the methods

and procedure of the 43 examining divisions in the allowance and rejection of applications for patents.

4. That one appeal within the United States Patent Office be eliminated; that the number of members of the Board of Examiners in Chief of the Patent Office be increased from three to five; that all appeals within the office be taken to that board; that its decision be the decision of the Patent Office; that the appeal therefrom be to the Court of Appeals of the District of Columbia, as now allowed from the decisions of the Commissioner of Patents.

5. That the fee for filing and application for a patent be increased from $15 to $20; that appeal fees be readjusted to the condition arising from the elimination of one appeal; that a fee of 25 cents be charged for each additional patent, etc., included in one instrument presented for record; that all fees be paid directly to the Patent Office; that refundment of fees paid by mistake be made by the financial clerk and not by warrant from the Treasury.

6. That the life of a patent be so limited as to expire 19 years from the date of filing the application therefor, excluding the time (not exceeding two years) during which an application may be involved in interference.

7. That the work of reclassifying patents and digesting of printed publications, and providing facilities for simplifying and making more accurate the search, be recognized by an appropriation for an adequate force to be employed upon such work.

8. That the subscription price of the *Official Gazette* be increased from $5 to $10 and the method of distribution to libraries be changed to reduce the number of copies so distributed.

9. That all the work of producing the publications of the Patent Office, including copies of patents, be done at the Government Printing Office.

10. That an appropriation be made for the repair of the rooms occupied by the Patent Office and for the installation of suitable lighting and ventilating facilities and for the purchase of new furniture and equipment.

Classification of Subjects of Invention.—A serious difficulty which leads to delay and complicates search is found in the classification of inventions, applications and topics. Many examples of decisions in the assignment of applications for examination are given in the report. Without a classification of the subjects of invention appropriate to and coördinated with the principles of patentability sufficiently defined to divide the entire field into relatively small ultimate units sufficiently uniform in principle to guide the searcher to the proper unit, and with such a basis of division as will bring those means which have the largest number of elements in common together under the units, it would be impossible to determine the novelty of each of the multitude of claims in the 70,000 applications now being filed annually with a reasonable approximation to certainty within the brief space of time possible to be allotted to each application in order that such speedy action may be had as the public interests and those of the inventor demand. It is evident that with over 1,040,000 patents of the United States Patent Office at the present time constituting the field of search among United States patents within which examiners must look in determining the novelty of an idea, it is inconceivable that such a search could be made without a classification which will enable the examiner to limit himself to a small number of these million-odd prior patents.

From the beginning the Office has attempted to do this, and between 1790 and 1898 there were 15 different systems or revised systems used which were developed on non-uniform and ill-defined principles. By Act of Congress approved June 10, 1898, a Classification Division was created to classify United States and foreign patents and literature in books, pamphlets and periodicals and in trade catalogues. This has been in active operation ever since and it has accomplished work of value, especially in the classification of that most complicated material found in chemical literature, where, in spite of some unfortunate errors, the results are useful and the methods original. The magnitude of the task may be realized from the report of the Commission, which, taking the average number of patents classified per year per man since 1898, finds it will take 25 men 16 years or 50 men seven years to finish the reclassification of the United States patents.

Patent Litigation.—There has for long been loud and widespread complaint of the cost of litigation; the long delays; and the loading of the record with irrelevant matters in patent issues. These evils have generally been charged to the "patent laws," and even members of Congress have sought to remedy them by proposed patent legislation, when in fact, since

most litigation relative to patents is in equity proceedings, it is controlled by existing equity rules. After many decades the U. S. Supreme Court ordered a revision of the rules, and on Nov. 4, 1912, promulgated its new equity rules to become effective Nov. 1, 1913. The most significant changes are that the testimony, as a rule, is to be taken in open court; that an expert's affidavit may be taken out of court and presented to the court subject to the defendant's right to call him for cross-examination; that delays are made more difficult; and that in case of an appeal being taken the appellant is required substantially to digest the testimony, the trial court having authority to decide what shall be the record. This rule as to making up the record has prevailed in the courts of the state of New York and it is significant that the Court of Appeals of New York abrogated this rule to take effect in the state courts the day the rule of the U. S. Supreme Court became effective in the Federal Courts.

Patent Law.—During the year the U. S. Supreme Court, in Bauer *v.* O'Donnell, modified its decision given in Henry *v.* A. B. Dick Co. (*A. Y. B.*, 1912, p. 522) by holding, in substance, that the dealer or patentee might not bring suit for infringement based upon the fact that the patentee had fixed the price (see also IX, *Law and Jurisprudence*). Mr. Oldfield renewed his bill for revising the patent laws, which failed in the preceding Congress, by filing a substitute bill, H. R. 1700, containing that same matter, especially in its anti-trust provisions, which the House Judiciary Committee refused to report favorably, and which was so severely criticised by the bar, inventors, manufacturers and men of science.

A storm of adverse comment has also been evoked by the bill introduced by Representative Kahn of California which, while enabling exhibitors at the Panama-Pacific Exposition to import free of duty articles and building materials intended for the Exposition, further provides that:

> It shall be unlawful for any person without authority of the proprietor thereof to copy, imitate, reproduce, or republish any pattern, model, design, trademark, copyright, or manufactured article protected by the laws of any foreign country by registration, copyright, patent, or otherwise, which shall be imported for exhibition at the Panama-Pacific International Exposition, and there exhibited.

The onus of this lies in the fact that not only by it is the exhibitor practically granted a patent or copyright by this country without being subject to the conditions required of other applicants for patents, but it also creates a new form of property that does not rest upon novelty or invention, but may include what is old and well known in this country, or what is patented and has long been patented to others in this country, or what is in its nature not patentable in this country. Since several foreign countries issue patents of importation, an article long well known here may be patented there by the importer of the article into that country, and, under this statute, such person, if he brought that article back into this country and exhibited it at the Exposition, would be given a monopoly of the article in the United States for approximately four years.

XXII. TRADE, TRANSPORTATION AND COMMUNICATION

GROVER G. HUEBNER

MERCHANT MARINE

Tonnage Afloat.—The free-ship law of Aug. 24, 1912 (Panama Canal Act, Sec. 5), has not been in effect sufficiently long to exert a widespread effect upon the deep-sea tonnage flying the American flag. It was not expected that any great number of foreign-built vessels would be registered in the United States immediately after its enactment. Only modern vessels of foreign construction, not over five years old, may be registered under this law, and all the watch officers of such vessels are required to be American citizens. As stated by the U. S. Commissioner of Navigation:

> A decent regard for alien officers who may have served for years with skill, courage, and fidelity, would forbid their discharge until they had found opportunities for other employment. Again, the selection of their American successors could not be effected without inquiry, as the number of American deck officers who within recent years have brought American steamships into foreign ports, except those in our vicinity, is not large. The change of flag, accordingly, is a matter requiring time in the case of vessels now afloat.

The latest official statistics of the total documented merchant fleet of the United States are for the fiscal year ending June 30, 1912, at which time the free-ship law had not been enacted. The gross tonnage of the registered marine, however, witnessed an increase from 872,671 tons in 1911 to 932,101 tons in 1912. The tonnage of the enrolled fleet remained practically the same as it was in the previous year, and, as is shown in the following table, the total documented merchant marine grew from 7,638,790 to 7,714,183 gross tonnage:

Year Ending June 30	Registered Vessels		Enrolled Vessels		Licensed Vessels Under 20 Tons		Total Documented Merchant Marine	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons
1880....	2,378	1,352,810	16,410	2,649,353	5,924	65,871	24,712	4,068,034
1890....	1,527	946,695	15,153	3,201,481	6,877	85,918	23,467	4,424,497
1895....	1,260	838,187	14,408	3,705,104	7,572	92,669	23,240	4,635,960
1900....	1,330	826,694	13,786	4,239,569	8,217	98,576	23,333	5,164,839
1905....	1,372	954,513	14,126	5,391,802	9,183	110,228	24,681	6,456,543
1909....	1,633	887,505	14,072	6,381,053	9,983	120,197	25,688	7,338,755
1910....	1,526	791,825	14,049	6,593,728	10,165	122,529	25,740	7,508,082
1911....	1,703	872,671	13,433	6,640,820	10,355	125,299	25,991	7,638,790
1912....	2,012	932,101	13,912	6,652,686	10,604	129,396	26,528	7,714,183

Of the aggregate documented gross tonnage, 5,179,858 comprised steamers, 1,538,847 sailing vessels, 922,911 barges, and 72,567 canal boats. In accordance with the past tendency the sailing tonnage continued its decline, while the steam and barge tonnage slowly increased in volume.

Geographical Distribution. — There was little change in the documented tonnage of the Pacific Coast and Great Lakes. At the ports of the Atlantic and Gulf coasts, however, there has been a brisker demand for ships, with a resulting increase from 3,559,885 to 3,625,525 gross tonnage. On June 30, 1912, the documented merchant fleet was distributed among the various geographical divisions and classes of vessels as follows:

Geographical Division	Sailing Vessels		Steam Vessels		Canal Boats		Barges		Total	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Atlantic and Gulf	6,599	1,026,631	7,677	1,864,762	214	24,359	2,384	709,773	16,874	3,625,525
Porto Rico	89	7,032	14	909	....	.....	.....	.....	103	7,941
Pacific Coast	579	271,013	2,583	592,507	....	.....	1,092	99,799	4,254	963,319
Hawaii	12	9,057	35	12,437	....	.....	.....	.....	47	21,494
Northern Lakes	303	225,114	2,269	2,575,914	451	48,208	344	100,688	3,367	2,949,924
Western Rivers	.....	.....	1,687	133,329	....	.....	196	12,651	1,883	145,980
Total	7,582	1,538,847	14,265	5,179,858	665	72,567	4,016	922,911	26,528	7,714,183

The aggregate documented tonnage was distributed among the leading customs districts in 1911 and 1912 as follows:

Customs Districts	1911	1912
New York	1,641,777	1,670,141
Cuyahoga, Ohio	895,286	864,398
Duluth	908,509	916,087
San Francisco	532,653	522,951
Puget Sound	276,866	285,091
Philadelphia	304,107	287,037
Boston	212,995	251,362
Baltimore	232,099	232,380
Buffalo Creek, N. Y.	278,534	281,519
Detroit	177,071	177,721
Perth Amboy	127,156	128,659

The statistics concerning documented tonnage particularly understate the real number and tonnage of barges, which have become of great importance in the trade of the Atlantic Coast.

Undocumented Craft.—A considerable portion of the American merchant marine consists of undocumented vessels not included in the above statistical returns. No reliable returns of these vessels have been made since 1906, at which time the United States Census Office reported a total of 19,497 vessels, with a gross tonnage of 6,579,402 tons. A more detailed statement was made in the Year Book for 1910 (p. 523).

World's Merchant Marine.—The total merchant fleet of the entire world as reported by *Lloyd's Register* increased from 43,147,154 tons in 1911 to 44,600,677 in 1912 and 46,970,113 in 1913. These returns are only approximate, for they exclude vessels of less than 100 tons, and they state the gross tonnage of steamers, while the tonnage of the world's sailing fleet is given in terms of net tonnage. Moreover, they take no account of the widely varying tonnage measurement rules which prevail in the different nations, the registered tonnage of the vessels of different flags being accepted as stated in their official tonnage certificates.

The number and gross tonnage of the world's steam vessels is itemized in the following table:

THE WORLD'S MERCHANT MARINE, STEAM VESSELS ONLY
(*Lloyd's Register*)

Flag	1900		1912		1913	
	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons
American:						
Sea	690	878,564	1,171	1,797,929	1,209	1,971,903
Lakes	242	576,402	588	2,262,480	593	2,285,836
Austria-Hungarian	214	387,471	392	902,704	419	1,010,347
British	7,903	12,149,090	10,014	19,202,770	10,009	19,849,167
Danish	369	412,273	548	703,520	552	711,094
Dutch	289	467,209	602	1,104,220	662	1,286,742
French	662	1,052,193	932	1,638,501	987	1,793,310
German	1,209	2,159,919	1,908	4,276,191	2,019	4,743,046
Italian	312	540,349	536	1,119,121	591	1,274,127
Japanese	484	488,187	960	1,344,991	1,037	1,500,014
Norwegian	806	764,683	1,495	1,695,321	1,597	1,870,793
Spanish	422	642,231	526	756,136	547	826,261
Swedish	678	418,550	1,006	866,853	1,043	943,926
Other Countries	1,591	1,432,237	11,539	2,847,440	2,632	3,012,611
Total	15,898	22,369,358	23,217	40,518,177	23,897	43,079,177

Relative Position of American Deep Sea Shipping.—On the basis of the value of exports and imports, 9.4 per cent. of the country's foreign trade was carried in American vessels in the fiscal year 1912, as compared with 8.7 per cent. in the previous two years. The following table indicates concretely the declining position of the American flag in the foreign trade as compared with the past. It is the hope of Congress that the adoption of the free-ship policy will gradually reverse the tendency which has prevailed in the American marine for over 50 years.

AMERICAN VESSELS IN THE FOREIGN TRADE

Year	Total Imports and Exports				
	In Cars and Other Land Vehicles	By Sea			Per Cent. in American Vessels
		American Vessels	Foreign Vessels	Total	
1821	.....	$113,201,462	$14,358,235	$127,559,697	88.7
1826	.....	150,331,636	12,238,163	162,569,799	92.5
1840	.....	198,424,609	40,802,856	239,227,465	82.9
1850	.....	507,247,757	255,040,793	762,288,550	66.5
1880	$20,981,393	258,346,577	1,224,265,434	1,482,612,011	17.4
1900	154,895,650	195,084,192	1,894,444,424	2,089,528,616	9.3
1905	242,265,329	290,607,946	2,103,201,462	2,393,809,408	12.1
1908	261,861,952	272,512,228	2,520,740,958	2,793,253,186	9.8
1909	253,580,297	258,657,217	2,462,693,814	2,721,351,031	9.5
1910	319,163,630	260,800,278	2,722,813,242	2,983,613,520	8.7
1911	365,903,334	280,206,464	2,930,436,506	3,210,642,970	8.7
1912	426,116,920	322,451,565	3,109,018,858	3,431,470,423	9.4

On the basis of vessel entrances and clearances, 26.5 per cent. of the shipping in the foreign trade was conducted in American vessels in 1913, as compared with 25 per cent. in 1912 and 23 per cent. in 1911. The American proportion has increased during the last three years, and the total entrances and clearances of American ships engaged in the foreign trade has increased from 19,446,233 tons in 1911 to 27,017,375 in 1913. The official returns of entrances and clearances since 1900 are as follows:

ENTRANCES AND CLEARANCES IN FOREIGN TRADE

Year	Total Tonnage	Foreign		American	
		Tonnage	Per cent.	Tonnage	Per cent.
1900	56,444,146	44,099,576	78.0	12,344,570	22.0
1905	62,140,758	47,857,126	77.0	14,283,632	23.0
1910	79,941,664	62,244,602	78.0	17,697,062	22.0
1911	85,112,136	65,665,903	77.0	19,446,233	23.0
1912	92,574,983	69,614,418	75.0	22,960,565	25.0
1913	101,799,139	74,772,764	73.5	27,017,375	26.5

Total Shipping in the Foreign Trade.—The increasing volume of shipping in the foreign trade of the United States which prevailed during 1912 continued throughout the fiscal year 1913. Vessel entrances increased from 46,158,071 to 50,639,173 tons, and vessel clearances from 46,416,912 to 51,150,966 tons. Entrances and clearances combined advanced from a total of 92,574,983 tons in the fiscal year 1912 to an aggregate of 101,790,139 in 1913.

The geographical distribution of the shipping engaged in the foreign trade in the fiscal year 1913 was as follows:

Geographical Division	Entered	Cleared
Atlantic Ports	25,585,742	24,566,455
Gulf Ports	7,126,753	7,635,511
Lake Ports, etc	12,666,337	13,586,007
Pacific Ports	5,193,521	5,296,434
Mexican Border Ports	66,820	66,559
Total	50,639,173	51,150,966

This was divided among the leading ports as follows:

Port	Entered	Cleared
New York	14,464,161	14,370,619
Lake Ports, etc	12,666,337	13,586,007
Boston	3,069,111	1,900,308
Philadelphia	2,883,975	2,274,625
New Orleans	2,545,241	2,766,775
Puget Sound	2,887,322	3,058,504
Baltimore	1,593,794	1,900,038
Galveston	1,443,767	1,881,693
San Francisco	1,007,796	1,270,736
Mobile	638,883	689,806
Key West	586,269	521,175
Norfolk and Portsmouth	422,864	1,069,539
Tampa	504,963	110,567
Portland, Me	572,367	559,298
Pensacola	369,205	502,012
Savannah	289,028	449,084
Sabine	611,380	811,207
Newport News	450,252	556,191
Passamaquoddy	293,353	316,201
Charleston	217,111	109,476
Pearl River	291,627	300,297
Los Angeles	203,568	50,850
Portland, Oregon	40,653	314,533

Tonnage Built.—During the fiscal year 1912, 1,505 vessels, of 232,669 gross tonnage, were built and documented in the United States. As is shown in the following table, this is somewhat less than the tonnage built in the previous year:

Geographical Division	1910		1911		1912	
	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons
Atlantic and Gulf Coast	601	150,828	588	163,178	545	104,264
Northern Lakes	281	168,751	216	94,157	224	90,898
Pacific Coast	279	16,870	407	27,234	519	32,048
Western Rivers	193	5,488	202	6,393	205	5,286
Porto Rico	7	131	9	200	10	117
Hawaii	.....	.....	.....	.....	2	56
Total	1,361	342,068	1,422	291,164	1,505	232,669

Thirty-eight of the vessels built and documented in 1912 were vessels of 1,000 gross tons and over, and had a combined gross tonnage of 115,789. The steel tonnage of the year comprised 135,881 gross tons, as compared with 201,973 in 1911 and 250,624 in 1910. Of the total gross tonnage, steamers comprised 153,493 tons, barges 54,977, sailing vessels 21,221, and canal boats 2,978.

Official returns for the year 1913 are not as yet available, but the outlook on the seaboard was "the most promising in ten years." The demand for shipping has been brisk on the Atlantic and Gulf seaboard and in Europe. In view of the returns up to Nov. 30, 1912, the Commissioner of Navigation estimated a possible output of 400,000 tons for the fiscal year 1913. Meanwhile the shipyards of Great Britain and Germany have also been unusually busy.

Vessel Accidents and Tonnage Destroyed.—The loss to vessels and cargo due to vessel accidents in American waters was less in the fiscal year 1912 than during the two preceding years. The total number of wrecks in American waters and the number of wrecks of American vessels in foreign waters and at sea in 1912 aggregated 1,447. Of these 653 occurred on the Atlantic and Gulf coasts, 141 on the Pacific Coast, 280 on the Great Lakes, 196 on American rivers, and 177 at sea and in foreign waters. Vessels numbering 328 were total losses, and 113,920 tons of vessel tonnage was totally lost. The known loss to vessels was $8,213,000, and the cargo losses aggregated $1,940,000. Though 40,262 persons were on board the wrecked vessels, but 194 lives were lost.

The following table, compiled from the annual report of the Life Saving Service, compares the main phases of marine accidents occurring on American vessels and on foreign and American vessels in American waters:

	1911	1912
Wrecks	1,227	1,447
Vessels totally lost	294	328
Tonnage totally lost	101,365	113,920
Tonnage damaged	1,475,688	1,444,074
Loss to vessels	$9,565,995	$8,213,375
Loss to cargoes	$1,694,630	$1,940,760
Lives lost	262	194

The "Volturno" Disaster.—The world's greatest marine accident during 1913 was the burning of the steamship *Volturno*, of the Uranium Line, during a severe storm on Oct. 10. The vessel and cargo were total losses, and 136 lives were lost. Had it not been for the successful use of wireless telegraphy all persons aboard would probably have perished. The wireless call brought the speedy assistance of 11 vessels, which saved the lives of 521 persons. The arrival of an oil tank steamer made possible the use of large quantities of oil, which greatly facilitated the launching of boats in an otherwise dangerous sea.

Ship Subsidies and Mail Payments.—The total amount paid by the United States Government for handling the foreign mails in the fiscal year 1912 was $3,195,883, as compared with $3,315,349 in 1911. The mail subsidies paid under the Mail Contract Act of March 3, 1891, amounted to $983,160, as compared with $1,079,945 in the previous fiscal year, the reduction being due to the suspension of the service between San Francisco and Tahite, and to 14 sailings blanked on the route between New York and Southampton. Under a new contract a second-class mail service was established between San Francisco and Sydney, Australia, *via* Honolulu and Pago Pago, the Oceanic Steamship Co. beginning the service on July 1, 1912.

No action has been taken by Congress to increase the mail subsidies paid in the United States. The recent policy has been rather to aid American ships in other ways. The new Tariff Act contains a provision granting a discount of 5 per cent. on the duties imposed on goods, wares, or merchandise imported in vessels of American registry, provided, however, that nothing in the clause shall be construed to abrogate the provision of any treaty with any foreign power. The exact meaning of this provision being indefinite, its application depends upon its interpretation by the Treasury Department, which has ordered customs officials to collect full duties on all imports. (See also I, *American History.*)

No further action has been taken by either Great Britain or the United States in the matter of free tolls on American vessels engaged in coastwise business. Discussion of that clause of the Panama Canal Act has been temporarily overshadowed by the widespread interest in tariff and currency legislation. The British Government has not recently urged its complaint, but it is thought that this inactivity is but temporary. (See also I, *American History;* and III, *International Relations.*)

The clause in the Panama Canal Act and in the new Tariff Act, extending the right to import shipbuilding materials free of duty to all branches of American shipping, has thus far had little effect, because the relative prices of steel plates in the United States and abroad have been unfavorable to importation into the United States.

Panama Measurement Rules.—As stated in the YEAR BOOK for 1912 (p. 528), the Panama Canal Act of Aug. 24, 1912, authorized the President to fix canal tolls and to promulgate measurement rules. A schedule of tolls was accordingly announced on Nov. 14, 1912, the tolls on all merchant vessels, subject to charges, being based upon their net tonnage, "each 100 cu. ft. of actual earning capacity" (*A. Y. B.*, 1912, p. 529). The measurement rules according to which the net tonnage of all merchant vessels passing through the canal shall be ascertained have since then been formulated, and have been promulgated by the executive order of Nov. 26, 1913.

The Panama measurement rules, which have been distributed among the admeasurers of the various shipping nations in order that vessels may be provided with Panama measurement certificates, aim to disclose a net tonnage which fairly represents a vessel's earning capacity, that is, its cubical contents available for the carriage of freight and passengers. They endeavor to treat fairly the ships of all flags and of all types of construction. Since the measurement rules of the several nations understate real net tonnage, discriminate between different types of vessels, and contain other defects, they are unsatisfactory as the basis for Panama Canal tolls.

The Panama rules, which were recommended by Emory R. Johnson, are consequently more like those of the Suez Canal Company than like those of any nation. The Suez rules, which were originally formulated by an international tonnage commission, also aim to disclose a vessel's earning capacity and to treat fairly the ships of all flags and types of construction. Both the Suez and Panama rules require the measurement of enclosed shelter-deck spaces and enclosed superstructures, and both deduct engine and fuel spaces in accordance with the so-called Danube rule. The Suez rules, however, contain various minor defects, some of which have been forced upon the Company since its rules were first adopted and some of which are due to changes in marine architecture. The Panama and Suez rules are therefore not identical. They differ chiefly in the following respects: (1) The Panama rules require the measurement of all enclosed portions of superstructure, while the Suez rules under certain conditions exempt portions of the poop and forecastle. (2) The Panama rules require the measurement of double bottom compartments used for the storage of fuel oil, while the Suez rules exempt double bottoms in all cases. (3) The Suez rules limit the total deduction of crew and navigation and all spaces other than engine and fuel spaces to 5 per cent. of the gross tonnage, while the Panama rules contain no such maximum limitation. (4) The Panama rules deduct and the Suez rules include in net tonnage the various peak, side and deep water-ballast tanks which are not available for cargo. The same is true of the boatswain's storeroom, and of the sail room of sailing vessels. (5) The Panama rules require the measurement of deck loads, while the Suez rules allow deck loads free passage.

Army and navy transports, colliers, hospital and supply ships are measured under the same rules as are merchant vessels. Other naval vessels, however, are required to pay Panama tolls based upon their displacement tonnage, instead of upon net tonnage, because warships, not being intended for the carriage of freight and passengers, can have no real net tonnage. The Panama rules specify that the tolls shall be levied on their actual displacement, and specify how such displacement tonnage shall be ascertained.

Panama Canal Nearing Completion. —The Panama Canal is gradually nearing completion. On Oct. 1, 211,048,000 cub. yd. of material had been excavated, and 21,305,000 cub. yd. remained to be excavated. Of the total tonnage of lock-gate material in all locks, 99.45 per cent. had been erected; the Gatun Dam had been 99.98 per cent. completed; and 94.41 per cent. of the excavation in the Central or Culebra Cut division had been completed. Since then the water has been turned into Culebra Cut and the work of clearing the Cucaracha slide by blasting, sluicing, and suction dredging has made rapid progress. Although considerable work remains to be done, a water route has been opened from ocean to ocean. It is expected that the canal will be formally opened early in 1914 when a triumphal procession will pass through.

The total canal appropriations down to June 30, 1913, were $349,505,419, and the total receipts from all sources aggregated $357,505,715. The total disbursements were $314,370,978. It is estimated by the Isthmian Canal Commission that the total cost of the canal, including payments to the New French Canal Co. and to the Republic of Panama, will approximate $375,000,000. (See also X, *The Panama Canal.*)

EXTERNAL COMMERCE OF THE UNITED STATES

Total Foreign Trade. — The Total foreign trade of the United States in merchandise during the fiscal year 1913 was valued at $4,278,862,383, $2,465,884,149 of exports and $1,812,978,234 of imports. It exceeded that of 1912 by $421,274,940. Both the export and import trade were greater than in 1912 and greater than in any other fiscal year in the history of American commerce. On June 30, 1913, moreover, imported wares valued at $105,928,884 were retained in warehouses, most of which were being

held for release after the enactment of the Tariff bill then pending in Congress. The merchandise so stored will not appear as imports until the fiscal year 1914. (See also XIII, *Economic Conditions and the Conduct of Business.*)

Exports to Foreign Countries.— The export trade of the fiscal year 1913 exceeded that of the preceding year by $261,561,740. As is shown in the following table, there was an increase in each continental division except in Asia:

EXPORTS OF MERCHANDISE, BY CONTINENTS

Continent	1911	1912	1913
Europe	$1,308,275,778	$1,341,732,789	$1,479,076,009
North America	457,059,179	516,837,671	617,411,765
South America	108,894,894	132,310,451	146,147,993
Asia	85,422,428	117,461,561	115,056,620
Oceania	66,067,313	71,936,513	79,102,845
Africa	23,600,607	24,043,424	29,088,917
Total	$2,049,320,199	$2,204,322,409	$2,465,884,149

Argentina, China, and India were the only important markets in which the American exporter lost ground as compared with the year 1912. Among the markets of less importance in which the export trade declined were Turkey and the Balkan States, Switzerland, British Honduras, Costa Rica, Salvador, the Barbados, Haiti, Bolivia, Dutch Guiana, Aden, Dutch East Indies, Asiatic Russia, and Egypt. The export trade was especially prosperous in Holland, Belgium, England, Germany, France, Italy, Spain, Canada, Cuba, Japan, Australia, New Zealand, and South Africa.

Of the total exports in 1913, 59.9 per cent. were shipped to European markets, as compared with 60.8 per cent. in 1912. The relative proportion marketed in Asia likewise declined from 5.3 to 4.7 per cent. The South American and Australasian proportions remained, respectively, 6 and 3.2 per cent. as in 1912. The export trade in North American markets, on the contrary, relatively increased from 23.4 to 25 per cent., and the African export trade comprised 1.2 per cent. of the total, as compared with 1.1 per cent. in the preceding year.

The values of the exports shipped to the leading individual markets are shown in the following table (see also table in Department IV, *Foreign Affairs*):

EXPORTS OF MERCHANDISE, BY PRINCIPAL COUNTRIES

Market	1911	1912	1913
Germany	$287,495,814	$306,959,021	$331,684,212
Great Britain	576,613,974	564,372,186	597,150,307
France	135,271,648	135,388,851	146,100,201
Canada	269,806,013	329,257,362	415,260,049
Netherlands	96,103,376	103,702,859	125,909,862
Italy	60,580,766	65,261,268	76,285,278
Mexico	61,281,715	52,847,129	54,571,584
Belgium	45,016,622	51,387,618	66,845,462
Cuba	60,709,062	62,203,051	70,581,154
Argentina	43,918,511	53,158,179	52,894,834
Japan	36,721,409	53,478,046	57,741,815

The volume of exported manufactures continued to increase, constituting 48.88 per cent. of the nation's total exports in the fiscal year 1913, as compared with 47.08 per cent. in 1912 and 45.07 per cent. in 1911. Their total value was $1,187,000,460. Finished manufactures alone constituted 32.04 per cent. of the total export trade, and for the first time exceeded every other large group of exports. Of the total export trade, 30.10 per cent. consisted of crude materials for use in manufacturing; 13.19 per cent. of foodstuffs, partly or wholly manufactured; 7.48 per cent. of crude food-

IMPORTS AND EXPORTS OF MERCHANDISE, BY CLASSES

Year Ended June 30	Foodstuffs in Crude Condition, and Food Animals	Foodstuffs Partly or Wholly Manufactured	Crude Materials for Use in Manufacturing	Manufactures for Further Use in Manufacturing	Manufactures Ready for Consumption	Miscellaneous	Total
Imports	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1900..	97,916,293	133,027,374	276,241,152	134,222,045	203,126,341	5,407,979	849,941,184
1901..	110,385,208	125,540,654	248,006,751	127,576,924	205,505,580	6,157,048	823,172,165
1902..	120,280,302	95,350,256	303,001,868	147,656,292	231,420,820	5,611,410	903,320,948
1903..	119,202,674	116,620,623	330,491,084	195,750,847	257,740,815	5,896,825	1,025,719,237
1904..	132,223,895	118,222,862	320,794,431	160,233,890	252,812,835	6,754,620	991,087,371
1905..	146,130,903	145,355,839	389,160,658	177,827,960	252,349,842	6,665,061	1,117,513,071
1906..	134,322,347	140,358,109	414,687,999	220,298,751	307,674,728	9,100,980	1,226,562,446
1907..	149,747,693	158,656,263	477,027,174	274,096,464	364,192,884	10,700,947	1,434,421,425
1908..	145,577,427	147,008,870	363,823,723	196,320,135	331,204,635	10,406,902	1,194,341,792
1909..	164,110,674	165,700,920	451,359,259	222,101,622	299,106,235	9,541,514	1,311,920,924
1910..	144,776,636	181,566,572	566,270,770	285,138,373	367,723,367	11,471,712	1,556,947,430
1911..	181,194,863	172,006,501	511,362,140	287,785,652	361,422,180	13,454,769	1,527,226,105
1912..	230,358,230	196,100,608	555,986,041	293,739,134	360,018,963	17,061,958	1,653,264,934
1913..	211,458,109	194,680,542	633,224,443	348,886,253	410,608,036	14,120,851	1,812,978,234
Exports[1]							
1900..	227,347,193	318,126,502	325,589,000	152,890,591	331,955,684	14,854,601	1,370,763,571
1901..	246,394,140	336,605,378	397,767,463	148,013,625	317,764,367	13,917,833	1,460,462,806
1902..	184,786,389	328,831,350	373,595,243	131,918,311	321,946,540	14,404,028	1,355,181,861
1903..	185,308,064	323,244,697	408,442,137	140,666,864	327,468,629	7,100,911	1,392,231,302
1904..	135,747,224	308,836,077	461,424,464	174,876,659	348,734,801	5,559,792	1,435,179,017
1905..	118,185,098	283,065,098	472,114,493	209,926,174	402,049,798	6,403,980	1,491,744,641
1906..	177,216,467	347,385,463	500,536,700	226,210,513	459,812,655	6,791 584	1,717,953,382
1907..	167,348,227	345,706,609	593,145,135	259,442,028	480,681,423	7,394,612	1,853,718,034
1908..	189,051,824	331,961,663	556,681,462	261,105,883	489,469,958	6,515,567	1,834,786,357
1909..	135,693,409	302,555,341	520,907,436	231,186,607	440,229,407	7,783,393	1,638,355,593
1910..	109,828,320	259,259,654	565,934,957	267,765,916	499,215,329	8,079,822	1,710,083,998
1911..	103,401,553	282,016,883	713,018,206	309,151,989	598,367,852	7,592,542	2,013,549,025
1912..	99,899,270	318,838,493	723,008,839	348,149,524	672,268,163	8,155,539	2,170,319,828
1913..	181,693,263	320,401,482	730,963,704	408,992,111	778,008,349	8,447,449	2,428,506,358

[1] Exports of domestic merchandise only.

stuffs and food animals; and 0.35 per cent. of miscellaneous merchandise.

The largest single export, raw cotton, fell off slightly, its value being $547,375,195, as compared with $565,849,271 in 1912. The exports of cotton textiles, cattle and beef products likewise declined, while those of pork products, naval stores, and leather remained about stationary. There was, however, an increase in all other leading exports. The exports of the great manufactures, iron and steel wares, agricultural implements, copper, leather goods, refined oils, lumber, cars and carriages, underwent a rapid growth. Leaf tobacco, coal, and even wheat and flour were shipped abroad in greater quantities than during the fiscal year 1912.

In addition to the exports of merchandise, gold valued at $77,762,622 and silver valued at $71,614,311 were exported to foreign markets in the fiscal year 1913.

Ports of Export.—The leading individual ports of export in 1912 and 1913 were the following, with total value of exports from each:

Ports	1912	1913
New York	$817,945,803	$917,935,988
Galveston	218,146,097	281,457,858
New Orleans	149,160,910	169,980,277
Baltimore	92,210,877	116,474,439
Philadelphia	69,069,730	76,315,344
Savannah	104,286,925	58,235,404
Boston	69,692,171	69,552,656
Buffalo Creek, N. Y.	55,016,025	66,706,609
Detroit	55,911,967	62,324,617
San Francisco	49,249,734	66,021,385
Puget Sound	63,745,572	62,548,109
Mobile	31,230,117	27,823,998
Huron, Mich	32,199,443	37,331,342
Minnesota	25,128,304	42,570,727
Niagara	26,526,794	36,395,970

Rapid gains were registered in all the larger Atlantic Coast ports except Boston and Savannah; at all the leading Northern border ports; at New Orleans and Galveston, and at San Francisco.

Exports to American Dependencies.—The following table shows the shipments of domestic merchandise to our

non-contiguous territories in the fiscal years 1912 and 1913:

	1912	1913
Alaska	$18,809,270	$20,179,547
Hawaii	24,418,671	30,411,899
Porto Rico	37,424,545	32,223,191
Philippines	23,703,935	25,360,646
Guam	253	1,755
Tutuila	83,048	125,482
Total	$104,439,722	$108,302,520

There was an increase of $3,862,798 in the shipments to our dependencies in 1913 as compared with the previous year. The increase was general in all the dependencies except Porto Rico and the aggregate was the greatest in the history of American trade. The market for American exports in 1913 found in our dependent territories was greater than in various long-standing foreign markets, such as Argentina, Japan, China, Cuba, Italy, Belgium, or Australia. The leading shipments, as usual, consisted of iron and steel goods, cotton goods, mineral, oils, lumber, breadstuffs, meats, and rice. In addition to domestic merchandise, the shipments to these markets in 1913 included foreign merchandise valued at $1,837,866 and gold and silver valued at $3,014,575.

Imports from Foreign Countries.—The increase in imports which prevailed in 1912 continued throughout the fiscal year 1913. The aggregate value of imported commodities increased by $159,713,300. As is shown in the following table, the increase was general in each continental division:

IMPORTS OF MERCHANDISE, BY CONTINENTS

Continent	1911	1912	1913
Europe	$768,167,760	$819,585,326	$892,866,384
North America	305,496,793	334,072,039	361,943,659
South America	182,623,750	215,089,316	217,747,038
Asia	213,449,730	225,468,250	276,452,368
Oceania	30,274,452	36,464,115	37,543,441
Africa	27,213,620	22,585,888	26,425,344
Total	$1,527,226,105	$1,653,264,934	$1,812,978,234

The proportion of the total imports coming from Europe remained about the same, being 49.2 per cent. in 1913 and 49.5 per cent. in 1912. The North American and African proportions likewise remained substantially unchanged, being 20 and 1.4 per cent., respectively, in 1913, as compared with 20.2 and 1.4 per cent. in the preceding year. The importance of Asiatic imports, however, rose from 13.7 to 15.2 per cent., while that of South American imports fell from 13 to 12.1 per cent.

The imports of merchandise into the United States from the leading individual countries in 1911, 1912, and 1913 were as follows:

IMPORTS OF MERCHANDISE, BY PRINCIPAL COUNTRIES

Country	1911	1912	1913
Great Britain	$261,289,106	$272,940,700	$295,564,940
Germany	163,242,560	171,387,380	188,963,071
France	115,414,784	124,548,458	136,877,990
Brazil	100,867,184	123,881,644	120,155,855
Cuba	110,309,468	120,154,326	126,088,173
Canada	100,863,418	108,813,368	120,571,180
Japan	78,527,496	80,607,469	91,633,240
Italy	47,324,809	48,028,529	54,107,364
Mexico	57,450,111	65,915,313	77,543,842
British India	43,952,047	50,948,901	67,936,850

With the exception of Brazil, there was an increase in the imports from each of the countries named during the last fiscal year. The imports received from China, moreover, increased from $29,573,732 in 1912 to $39,010,800 in 1913. Among the lesser countries in the import trade, minor de-

clines occurred in Argentina, in the Balkan States and Turkey, in Ireland, Bermuda, Costa Rica, Nicaragua, Panama, Salvador, Newfoundland, Jamaica, the Danish and French West Indies and Santo Domingo, Ecuador, British and Dutch Guiana, Peru, Uruguay, the Dutch East Indies, British East Africa, and Morocco. The imports received from all other parts of the commercial world increased during the fiscal year 1913.

Of the imports received from foreign countries in 1913, 34.93 per cent. consisted of crude materials for manufacturing purposes, as compared with 33.63 per cent. in the preceding year. The relative position of manufactures for further use in manufacturing likewise advanced from 17.77 to 19.24 per cent., and that of finished manufactures from 21.78 to 22.65 per cent. On the contrary, the imports of crude foodstuffs and food animals relatively declined from 13.93 to 11.66 per cent. of the total; those of foodstuffs partly or wholly manufactured, from 11.86 to 10.74 per cent.; and those of miscellaneous merchandise from 1.03 to 0.78 per cent.

The great increase in imports was chiefly in hides and skins, wool, iron and steel goods, raw silk, leaf tobacco, chemicals, copper, woolen, cotton and silk goods, fibers and fiber manufactures, leather, vegetable oils, paper, precious stones, spirits and wines, and lumber. The imports of sugar, rubber, and fruits and nuts, on the contrary, were less than in 1912. The value of coffee imports increased slightly, owing to the rise of coffee prices, but their volume fell from 885,201,247 to 863,130,757 lbs.

That the increase in imports was general throughout the country is shown in the following table, showing the import trade by groups of ports:

IMPORTS OF MERCHANDISE, BY GROUPS OF PORTS

Groups of Ports	1911	1912	1913
Atlantic ports	$1,163,540,071	$1,268,100,584	$1,375,819,835
Pacific ports	102,702,653	111,488,360	128,895,064
Northern border and Lake ports	137,723,850	137,882,121	153,612,547
Gulf ports	82,147,619	92,244,523	103,612,409
Interior ports	20,747,924	21,037,117	23,978,819
Mexican border	20,363,988	22,512,229	27,059,560
Total	$1,527,226,105	$1,653,264,934	$1,812,978,234

The port of New York in the fiscal year 1913 imported merchandise valued at $1,048,290,629, or 57.7 per cent. of the country's total imports, as compared with 59 per cent. in 1912 and 57 per cent. in 1911. The port of New York now conducts a greater import trade than the entire nation conducted prior to 1905. The other leading importing ports in 1913 were Boston, $146,599,451; Philadelphia, $93,209,678; New Orleans, $82,399,100; San Francisco, $62,501,681; Puget Sound, $51,473,683; and Baltimore, $32,895,238.

In addition to the imports of merchandise, gold valued at $69,194,025 and silver valued at $41,268,516 were imported in the fiscal year 1913.

Imports from American Dependencies.—The receipts of domestic merchandise from our non-contiguous possessions are shown in the following table:

IMPORTS FROM NON-CONTIGUOUS TERRITORIES

	1911	1912	1913
Alaska	$13,813,824	$21,597,712	$24,014,556
Hawaii	41,180,195	55,055,816	42,652,462
Porto Rico	34,764,007	42,873,401	40,529,665
Philippines	17,400,398	23,257,199	21,010,248
Guam	.....	.....	.....
Tutuila	99,040	21,885	[1]
Total	$107,257,464	$142,984,128	$128,206,931

[1] Figures not yet available.

There was a decline from $142,784,128 in 1912 to $128,206,931 in 1913, a decline common to all the outlying possessions, with the exception of Alaska. The year's import trade, however, was in excess of the trade of 1911 or that of any other preceding year. It exceeded, moreover, the total domestic shipments from the United States to our outlying possessions by $14,577,000.

In addition to imports of domestic wares, the United States received from the non-contiguous territories foreign merchandise valued at $690,111 and gold and silver valued at $19,543,128.

The Balance of Trade.—The general movement of the balance of trade from 1900 to 1913, so far as it concerns shipments and receipts of merchandise and gold and silver, is shown in the following table:

Fiscal Year	Merchandise			Merchandise and Specie		
	Imports	Exports	Excess of Exports	Imports	Exports	Excess of Exports
1900...	$849,941,184	$1,394,483,082	$544,541,898	$929,770,670	$1,499,462,116	$569,691,446
1901...	823,172,165	1,487,764,991	664,592,826	925,609,873	1,605,235,348	679,625,475
1905...	1,117,513,071	1,518,561,666	401,048,595	1,198,646,897	1,660,004,502	461,357,605
1906...	1,226,562,446	1,743,864,500	517,302,054	1,367,226,716	1,848,307,154	481,080,438
1907...	1,434,421,425	1,880,851,078	446,429,653	1,591,878,298	1,988,989,327	397,111,029
1908...	1,194,341,792	1,860,773,346	666,431,554	1,387,337,210	1,991,127,472	603,790,262
1909...	1,311,920,224	1,663,011,104	351,090,880	1,399,879,023	1,810,225,714	410,346,691
1910...	1,556,947,430	1,744,984,720	188,037,290	1,645,504,529	1,918,834,796	273,330,267
1911...	1,527,226,105	2,049,320,199	522,094,094	1,646,770,367	2,136,579,810	489,809,443
1912...	1,653,264,934	2,204,322,409	551,057,475	1,749,251,653	2,326,541,422	576,289,769
1913...	1,812,978,234	2,465,884,149	652,905,915	1,923,440,775	2,615,261,082	691,820,307

In 1913 the excess of the country's total exports over imports, including gold and silver, was $691,820,307, greater than in any other year in the history of the foreign trade. The excess of exports over imports of merchandise was $652,905,915, greater than in any year since 1908, a year in which the imports were abnormally low.

As in recent years, the excess of exports was chiefly in the trade with Europe, North America, Australasia, and Africa, while in the Asiatic and South American trades there was an excess of imports. It is chiefly in the trade with England, Germany, Holland, Belgium, Italy, Canada, Argentina, and Australia that an excess of exports annually appears. The leading countries in which there is an excess of imports are Brazil, Cuba, Mexico, China, Japan, India, the East Indies, and Egypt.

INLAND WATERWAYS AND COASTWISE COMMERCE

Discontinuance of Official Statistics.—Owing to lack of appropriation, the United States Bureau of Statistics, now consolidated with the Bureau of Foreign and Domestic Commerce, has discontinued the collection and publication of detailed statistics of the commerce conducted on the inland rivers, the seaboard, and the Great Lakes. It is therefore possible to present official returns covering only limited portions of these branches of American commerce.

Domestic Trade of the Great Lakes.—Though the complete data of former years are not available, the upward trend of the Great Lakes' trade is shown by the following table, containing a statement of the traffic passing through the Sault Ste. Marie Canals:

	1911	1912
Coal, short tons.....	15,332,876	14,931,594
Flour, bbl.....	7,246,495	8,652,153
Wheat, bu.....	97,141,911	174,086,456
Other grain, bu.....	40,782,609	69,024,546
Manufactured and pig iron, short tons.....	412,269	654,892
Salt, bbl.....	661,308	660,991
Copper, short tons....	132,481	116,954
Iron ore, short tons...	30,731,235	46,303,423
Lumber, board-ft.....	558,513,000	667,542,000
Building stone, short tons.....	5,342	2,282
Unclassified freight, short tons.....	1,385,918	1,664,783
Total, short tons.	53,477,216	72,472,676

The total tonnage passing through the Sault Ste. Marie Canals in the calendar year 1912, as reported by the Bureau of Foreign and Domestic Commerce, was $72,472,676 short tons, as compared with 53,477,216 in the preceding year. The rapid increase was chiefly in the shipment of iron ore, lumber, grain, and flour. The shipments of coal, salt, and copper, on the contrary, were smaller than in 1911.

The movement of this increased traffic is clearly shown in the following table of freight to and from Lake Superior, in short tons:

To or from Ports on	From Lake Superior (Eastbound)		To Lake Superior (Westbound)	
	1911	1912	1911	1912
Lake Michigan	4,218,082	7,113,701	290,904	341,647
Lake Huron	1,499,109	2,254,702	442,877	471,079
Lake Erie	29,964,401	45,118,446	15,897,965	15,675,914
Lake Ontario	747,807	890,838	416,071	606,349
Total	36,429,399	55,377,687	17,047,817	17,094,989

The total tonnage passing through the Portage Lake Ship Canals likewise shows an increase from 2,200,402 short tons in the calendar year 1911 to 2,428,579 in the preceding year. The freight traffic through Sturgeon Bay and the Lake Michigan Ship Canal aggregated 572,185 short tons in 1911 and 550,169 in 1912.

Coastwise Trade. — The detailed data presented in former issues of the Year Book are not available for 1913. On the whole, the coastwise business during the calendar year 1912 was much the same as in the preceding year. In 1913 there was somewhat of a revival in coastwise trade on the Atlantic Coast, but the coastwise business on the Pacific Coast continued to remain dull.

The state of the coastwise trade on the North Atlantic seaboard in the year 1912, as compared with the preceding year, is illustrated by the coastwise movements at a few of the larger ports. The number of coastwise vessels arriving at Philadelphia, as reported by the Philadelphia Maritime Exchange, was 4,602 in 1911 and 4,004 in 1912; the numbers clearing were, respectively, 4,236 and 4,032. As reported by the New York Produce Exchange, the number of domestic arrivals at the port of New York from eastern points in 1912 was 2,170, as compared with 2,189 in 1911, and from southern points, 3,029 in 1912 and 2,908 in the preceding year.

The United States Bureau of Foreign and Domestic Commerce reports the value of the domestic intercoastal trade *via* the Isthmus of Panama and Tehuantepec in the fiscal year 1913 as follows:

	Via Isthmus of Panama	*Via* Isthmus of Tehuantepec	Total
From Atlantic-Gulf Coast to Pacific Coast	$11,322,693	$62,423,303	$73,745,996
From Pacific Coast to Atlantic-Gulf Coast	6,820,224	31,801,316	38,621,540
Total	$18,142,917	$94,224,619	$112,367,536

The chief westbound shipments consisted of iron and steel goods, cotton and woolen goods, paper, chemicals, tobacco, brass manufactures, cordage and twine, oil cloths, paints, soap, distilled spirits, and wooden ware. The leading eastbound shipments were Hawaiian sugar, wool, wines, canned salmon, copper, fruits, beans, and canned vegetables. The total westbound traffic was valued at $73,745,996, while the value of the eastbound trade was $38,621,540. The aggregate intercoastal trade in domestic merchandise *via* Panama and Tehuantepec was valued at $112,367,536.

New York State Canals.—The traffic of the New York State canals has undergone a further decline, the total falling from 3,039,068 tons in 1911 to

2,606,116 in 1912. As shown in the following table, the traffic of the Erie Canal declined from 2,031,735 in 1911 to 1,795,069 in 1912:

NEW YORK STATE CANALS

	Tonnage on New York State Canals					Total Quantity	Total Value
	Erie	Champlain	Oswego	Cayuga and Seneca	All Others		
1900.....	2,145,876	972,867	31,742	130,126	65,330	3,345,941	$84,123,772
1906.....	2,385,491	740,983	172,228	164,874	77,331	3,540,907	66,501,417
1907.....	2,415,548	678,506	143,277	112,570	58,013	3,407,914	63,903,970
1908.....	2,177,443	614,762	92,831	81,029	85,812	3,051,877	54,511,509
1909.....	2,031,307	732,125	121,717	84,957	146,430	3,116,536	59,081,572
1910.....	2,023,185	684,027	110,079	80,125	175,996	3,037,412	59,042,178
1911.....	2,031,735	770,668	113,891	98,854	81,920	3,039,068	49,577,629
1912.....	1,795,069	590,723	83,580	80,753	55,991	2,606,116	38,444,617

The reasons for this decline are stated by the Superintendent of Public Works of New York as follows:

While it may be true that some tonnage was lost to the Erie Canal by reason of the interruption to navigation on account of the serious break which occurred at Bushnell's Basin early in September, 1912, this may not be held responsible for the decreased amount of shipments as shown by the above figures. The principal cause for the falling off may be said to be largely due to the operation of the natural law of supply and demand. Early in the season it was found that an excessive demand existed for several of the commodities ordinarily shipped by canal, and it was to the great advantage of shippers that such commodities be forwarded to market in the shortest time possible. This applied particularly to the shipment of wheat from the West. According to prominent shippers, early in the season an unprecedented demand was made for western grain, owing to a scarcity of this commodity in various European countries, and the highest prices were offered for it. In order that advantage might be taken of this unprecedented condition, quick shipments were desired, and thousands of tons of grain formerly shipped over the Canal found their way to the seaboard by means of the railroad.

Another reason advanced by shippers in this connection, is that early in the Summer it was found that much of the grain coming down the lakes for shipment over the Canal was in such condition that much faster shipment was necessary than could be provided by the state's waterway.

Another element which would have a bearing on the falling off in canal tonnage as compared with the previous year is the fact that the railroad rate the past season to New York on grain was four and one-half cents per bushel for the greater part of the season. Inasmuch as the charge made by boatmen for grain was four cents per bushel, and in addition to this one-half cent per bushel was charged for elevator service, the state's waterways suffered so far as shipments were concerned. Experience has shown that in order that the Canal may receive preference in the shipment of grain, the Canal rates must be at least one cent less per bushel than those charged by the railroad.

The destruction by flood of the structure known as High Dam on the Oswego Canal, making impossible through navigation on that waterway, also contributed to a decrease in canal tonnage. On this structure depends navigation of the northern section. High water conditions made impossible a thorough investigation of its condition and repairs necessary to be made until late in the season. When such examination was finally made, it was found that the amount of money required for repairs would be very large, and, further, that the remaining portion of the structure was in such poor condition that if any work were to be done, the entire structure should be reconstructed. Inasmuch as it is expected the Barge Canal through this section will be completed at the end of another year, when the High Dam will be removed, the Department has not undertaken its reconstruction. The northern section of the Oswego Canal, therefore, will not be open for navigation next season [1913], but in the following year, 1914, the Barge Canal will be in commission.

As regards the Barge Canal now under construction, the Superintendent writes as follows:

The work of improving the Erie, Champlain, and Oswego canals as directed by the Barge Canal Act, has been in progress eight years, and the completion of the entire project is now in sight. Already the enlargement work on various sections of the canal has been completed, and that portion of the Champlain Canal between Fort Ann and Whitehall has been in operation during the past season [1912], together with the new locks on that canal between those points. During the season of navigation in 1913 still other sections of the Barge Canal, of much greater length, will be placed in commission, including a portion about 20 miles in length at its easterly terminus.

EXPRESS COMPANIES

The total mileage covered by the lines of the 12 leading express companies (Adams, American, Canadian Northern, Globe, Great Northern, National, Northern, Southern, United States, Wells, Fargo & Co., and Western) in the fiscal year 1912 was 283,348 miles; in 1911 the mileage was 270,438, and in 1910, 258,129. On July 31, 1911, the Pacific Express Co. discontinued business, but since, on Aug. 1, 1911, Wells, Fargo & Co. has extended its service to all the lines over which operations were formerly conducted by the Pacific Express Co., the statistics of the Interstate Commerce Commission for 1911 and 1912 remain comparable.

The total gross receipts from operation of the above-named companies in 1912 were $160,121,932, as compared with $152,612,880 in the preceding year. Their operating revenues were $81,545,658 in 1912 and $78,676,862 in 1911; operating expenses in 1912 and 1911 were, respectively, $73,255,682 and $67,089,233; other income, $5,369,822 and $6,315,842; gross corporate income, $12,182,367 and $16,600,616; and net corporate income, $10,944,371 and $15,366,609.[1]

The decline in both the gross and net corporate income of these companies was due largely to the increase in operating expenses, the decline of income from dividends declared on stocks owned and controlled, and in some instances to increased payments to the railways. Their gross receipts from operation increased during 1912, as the effect of reduced express rates, and competition with the parcel post did not become widespread until the fiscal year 1913.

The following table shows the principal statistical items for each of the 12 leading companies in the fiscal year 1912:

Company	Gross Receipts from Operation	Express Privilege	Operating Revenues	Operating Expenses	Net Corporate Income
Adams	$34,191,956	$17,833,972	$16,357,984	$15,152,394	$1,877,429
American	43,714,874	21,076,806	22,638,068	20,926,047	2,813,260
Canadian	3,046,186	1,386,874	1,659,313	1,347,773	237,935
Canadian Northern	778,642	302,837	475,805	276,411	192,677
Globe	773,219	385,229	387,990	371,902	160,481
Great Northern	2,965,921	1,779,375	1,186,546	961,320	170,506
National	1,269,022	529,007	740,015	631,379	101,434
Northern	2,994,057	1,623,335	1,370,722	1,083,936	267,587
Southern	15,628,470	7,728,291	7,900,179	6,376,267	1,423,599
United States	21,131,508	9,927,777	11,203,731	11,130,703	233,229
Wells, Fargo	32,465,971	15,439,708	17,026,262	14,483,415	3,441,674
Western	1,162,106	563,063	599,043	513,935	24,560
Total	$160,121,932	$78,516,274	$81,545,658	$73,255,682	$10,944,371

As was stated in the YEAR BOOK for 1912 (p. 535), the Interstate Commerce Commission on June 8, 1912, after completing an exhaustive investigation, issued an important order concerning express charges, rules, and practices. On Sept. 1, 1912, the express companies adopted the combined waybill and label and the practices relative thereto, as the Commission had ordered. They also prepared the proposed *Directory of Express Stations*, which had been ordered, but on Dec. 1, 1912, upon request, they were granted a delay in its issue. In the matter of establishing and publishing through routes, the companies suggested that such a tariff would be unduly cumbersome, and the Commission on Nov. 30, 1912, therefore required the appointment of a committee made up of a representative of each defendant company and one representative of the Commission. This committee is making "a study of existing express routes and considers all complaints of indirect or circuitous routing and proposed amendments to the existing routes of express carriers, so as to give to shippers the advantage of the most direct normal route."

[1] Preceding data for 1911 as corrected since the 1912 issue of the YEAR BOOK; 1912 data from *Preliminary Abstract of 1912 of the Interstate Commerce Commission.*

On July 24, 1913, the Interstate Commerce Commission issued an order (Decision No. 4198) requiring the express companies: to publish the proposed *Directory of Express Stations* not later than Oct. 15, 1913; to put into effect the block system of stating rates previously outlined and the proposed rates not later than Oct. 15, 1913; to adopt the new classification and rules prescribed by the Commission; and to adopt the new form of express receipts prescribed by the Commission. The enforcement of the decision has since been postponed to Feb., 1914.

THE POST OFFICE

The aggregate mail services of the United States in operation on June 30, 1912, are summarized in the following table:

	Number	Aggregate Length	Annual Travel (miles)	Annual Rate of Expenditure
Star routes[1]	12,668	160,323.49	84,780,388.02	$6,759,780.99
Special office routes[1]	1,009	9,433.00	.....	37,843.00
Star routes in Alaska	22	4,248.00	214,807.00	196,896.93
Steamboat routes	237	31,875.57	5,207,824.15	752,610.06
Mail-messenger routes	7,694	5,183.17	11,919,130.74	1,620,151.35
Pneumatic-tube routes	6	54.84	.....	932,366.70
Wagon routes (in cities)	283	1,241.17	5,154,855.06	1,698,236.46
Railroad routes	3,409	226,071.02	458,648,623.77	46,336,293.86
Railway post-office cars	.....	.....	.....	4,367,029.16
Electric and cable car routes	557	7,472.90	12,239,638.04	686,533.77
Total	25,885	445,903.16	578,165,266.78	$63,387,764.28
Star routes in Alaska (emergency)	.....	.....	.....	38,092.00
Steamboat routes (pound rate)	.....	.....	.....	86,671.63
Railroad transportation, misc:				
Periodical mails	.....	.....	.....	469,612.76
Mail weighings, etc	.....	.....	.....	244,876.25
Freight on mail bags, postal cards, etc	.....	.....	.....	407,511.52
Railway mail service (officers, clerks, etc.)	17,075	.....	.....	20,876,963.37
Mail equipment	.....	.....	.....	436,309.15
Miscellaneous expenses	.....	.....	.....	586.68
Total inland service	.....	.....	.....	$85,948,387.64
Foreign mails:				
Aggregate cost	.....	.....	$3,704,532.92	.....
Less intermediary services to foreign countries	.....	.....	508,649.65	3,195,883.27
Total				$89,144,270.91

[1] Consolidated with rural mail delivery.

As compared with the preceding year there was a further decline in the total number and length of mail routes, due to the further consolidation of star and special office routes with the rural free delivery service. The rate of expenditure for the total inland service increased from $84,663,776 in the fiscal year 1911 to $85,948,388 in 1912. The rate of expenditure of the foreign mail service, on the contrary, declined from $3,204,600 to $3,195,883. Corresponding returns for the fiscal year 1913 are not yet available.

Railway Mail Pay. — The total amount paid to the railroads in 1912 was $51,691,301, as compared with $50,583,123 in 1911 and $49,405,311 in 1910. This increase in railway mail pay was due not to an increase in the rates of pay, but to an increase in the service. The number and the length of rail routes were greater in 1912 than in the preceding year, as is shown in the above table. Since the introduction of the parcel post and especially since the increase in the maximum parcel post weight to 20 pounds in the first two zones, the railroads have renewed their request for a readjustment of the rates and methods of mail pay. Railways rep-

resenting 218,000 miles of mail-carrying line have organized a Committee on Railway Mail Pay to advance the pleas that the method of basing mail pay on weight taken once in four years results in the underpayment of the carriers, and that the railways have received practically no additional pay for the carriage of parcel-post mail. The committee maintains that the railways are underpaid to the extent of at least $15,000,000 a year. The matter of railway mail pay has been pressed before both the former and present Postmasters-General, but has not been brought to a decision. A joint Congressional committee has, therefore, been appointed to investigate the entire matter. It has taken testimony during the year, and the Post Office Department will probably take no action on the demands of the railways until the Committee's findings are announced.

Cost of Postal Service.—The total revenues, expenditures and deficit or profit of the Post Office since 1900, as reported by the Post Office Department, are shown in the following table:

Year	Postal Revenues	Postal Expenditures	Deficit
1900	$102,354,579	$107,740,267	$5,385,688
1905	152,826,585	167,399,169	14,572,584
1906	167,932,782	178,449,778	10,576,996
1907	183,585,006	190,238,288	6,653,282
1908	191,478,663	208,351,886	16,873,223
1909	203,562,383	221,004,103	17,441,720
1910	224,128,658	229,977,225	5,848,567
1911	237,879,823	237,648,926	230,897[1]
1912	246,744,015	248,525,450	1,781,435

[1] Excess.

The total expenditure reported in 1912 was $248,525,450, and the total revenues $246,744,015, showing a yearly deficit of $1,781,435, as compared with an excess of $230,897 in 1911. The deficit in 1912 was attributed to an extraordinary amount of franked matter mailed in the political primaries and was therefore temporary. On Dec. 1, 1912, the Postmaster-General reported that "since the close of the fiscal year the income of the department has again outstripped expenses."

The increase in annual expenses is distributed as follows:

	1900	1910	1911	1912
Service in Post Office	$51,214,498	$107,770,710	$112,898,369	$116,517,402
Railway mail service	8,839,767	19,389,414	20,106,909	20,711,675
Rural delivery service	420,499	37,073,733	37,145,757	41,889,523
Railway mail pay	37,315,724	49,405,311	50,583,123	51,691,301
Other means of transportation	7,794,212	12,534,501	13,175,366	13,288,790
Transportation foreign mail	2,155,567	3,204,130	3,315,349	3,917,371

Postal Savings System.—During the fiscal year 1912 the establishing of postal savings depositories at the Presidential offices was completed, and in 1913 the work of extending the system to fourth-class post offices and to branch offices in the larger cities has progressed. On Dec. 1, 1912, there were 12,812 depositories, about 300,000 depositors, and deposits aggregated about $28,000,000.

The gross income of the system in the fiscal year 1913 was estimated at $700,000 and the interest on deposits at $300,000. On the basis of central office expenses of $425,000 and compensation for the time of postal clerks employed on postal savings work of $275,000, it is evident that in 1913 the postal savings system was not entirely self-supporting. Approximately $50,000,000 in deposits is required to make the system self-sustaining.

The Parcel Post.—The effect of the domestic Parcel Post Act which went into effect on Jan. 1, 1913, has been largely extended by an order of the

Postmaster-General extending the maximum weight limit of a single parcel from 11 to 20 lbs. in the first two zones. This was done under the section of the act authorizing the Postmaster-General, with the consent of the Interstate Commerce Commission and after investigation by the Commission, to change the weight limit fixed by Congress. The original regulation requiring the use of special parcel-post stamps has likewise been abolished, regular postage stamps now being accepted in the parcel post.

TELEGRAPH AND TELEPHONE COMPANIES

The latest official returns covering the entire telegraph and telephone system of the United States are the census returns of 1907 (*A. Y. B.*, 1910, p. 534). Current returns of the leading individual companies show a further increase in earnings and capitalization and extension in service.

Telegraphs: The Western Union.— The principal business operations of the Western Union Telegraph Co., which largely controls the telegraph business of the United States, are shown in the following table:

	1911	1912
Stock issued	$99,817,100	$99,817,100
Funded debt	40,584,000	32,602,000
Miles of wire	1,487,345	1,517,317
Offices	24,926	25,392
Total income	37,158,989	42,987,807
Expenses	30,053,632	36,063,836
Net revenue	7,105,357	6,923,971
Interest, etc	1,733,390	2,920,416
Net profits	5,371,968	4,603,455
Cash dividends	2,991,304	2,991,823
Surplus for year	2,380,663	1,011,832

The Postal. — The principal operations of the Mackay Companies, a voluntary association of many allied telegraph companies, which controls the Commercial Telegraph Cable Co., and through it the system known as the Postal Telegraph, are as follows:

	Year Ending Feb. 1, 1912	Year Ending Feb. 1, 1913
Common stock	$41,380,400	$41,380,400
Preferred	50,000,000	50,000,000
Income from investments in other companies	4,125,907	4,136,009
Operating expenses	37,194	31,323
Balance	4,088,713	4,104,686
Dividends	4,069,020	4,069,020
Surplus for year	19,693	35,665

The Mackay Companies have no funded debt of their own, but the Commercial Cable Co., its subsidiary, has a bond issue of $20,000,000 outstanding.

Telephones: The American Bell. — The American (Bell) Telephone and Telegraph Co., the dominant telephone company in the United States, has again acquired additional telephone concerns and largely extended its service. The arrangement made with the Western Union Telegraph Co. for the joint use of telegraph and telephone facilities was declared illegal in New York, as a discrimination against other telegraph companies. (See I, *American History.*)

Its operations during the years 1911 and 1912 were as follows:

	1911	1912
Capital stock	$320,949,709	$334,806,375
Funded debt	98,459,000	160,384,000
Stations[1]	6,632,625	7,456,074
Miles of wire	12,932,615	14,610,813
Total earnings	36,970,229	42,717,993
Net earnings	33,301,245	33,907,644
Net income	27,733,265	32,062,946
Dividends	22,169,450	26,015,588
Surplus for year	5,563,815	6,047,358

[1] Including stations of local, coöperative, and rural independent lines associated with or acting as connecting lines.

The combined operations of the entire Bell System, including subsidiaries (except the Western Union Telegraph Co.), and excluding all duplications, are shown in the following table for the fiscal years ending Dec. 31, 1911 and 1912:

	1911	1912
Capital stock	$379,727,832	$393,209,925
Bonded debt	241,032,822	294,380,353
Gross earnings	179,477,998	199,172,154
Operating expenses and taxes	69,051,347	75,590,026
Maintenance and depreciation	58,840,354	66,705,438
Net earnings	51,586,297	56,886,690
Interest	13,610,860	14,205,365
Net income	37,975,437	42,681,325
Dividends	25,966,876	29,460,215
Surplus for year	12,008,561	13,221,110

STREET RAILWAYS

The past year has been one of considerable activity in the street-railway business. The unofficial returns of the *Electric Railway Journal*, which are based primarily on the reports contained in the *McGraw Electric Railway Manual*, show an increase in miles of track from 41,028 miles on Jan. 1, 1911, to 43,044 on Jan. 1, 1912. Similarly, the number of cars increased from 91,457 to 93,946; the outstanding capital stock from $2,433,186,153 to $2,945,275,090; and the outstanding funded debt from $2,424,334,538 to $2,640,578,521. The total outstanding stocks and bonds of street-railway companies advanced from $4,857,520,741 to $5,585,853,611 of par value. On the contrary, the number of companies declined from 1,209 to 1,115.

The distribution of the street-railway business on Jan. 1, 1912, is shown in the following table:

	Number of Companies	Miles of Track	Cars	Capital Stock Outstanding	Funded Debt Outstanding	Total Stock and Bonds Outstanding
New England	120	6,247.40	16,189	$219,136,800	$181,467,225	$400,604,025
Eastern States	396	12,951.70	34,048	909,375,390	1,090,305,321	1,999,680,711
Central States	321	15,089.10	27,075	714,481,925	825,720,370	1,540,202,295
Southern States	96	2,144.50	4,142	210,739,220	173,263,850	384,003,070
Western States	182	6,611.27	12,492	891,541,755	369,821,755	1,261,363,510
United States, Jan. 1, 1912	1,115	43,043.97	93,946	$2,945,275,090	$2,640,578,521	$5,585,853,611
United States, Jan. 1, 1911	1,209	41,028.49	91,457	$2,433,186,153	$2,424,334,558	$4,857,520,741

RAILROADS

Physical Condition and Services.—The single-track mileage of all the railroads covered in the statistical abstract issued by the Interstate Commerce Commission on July 1, 1913, was 240,239. This return represents the mileage on June 30, 1912. On the lines included there were 61,250 locomotives, 979 more than in 1911; and 2,368,658 cars, 25,245 more than in 1911. Of the total cars in service, 2,203,128 were in the freight service, 50,606 in the passenger service, and 114,924 in company service. The total number of employees was 1,699,218, an increase of 45,987 since the same date in the year 1911.

During the fiscal year 1912, the railways covered by the abstract carried 994,158,591 passengers, an increase of 6,447,594 over corresponding returns for 1911. The total freight carried, including freight received from connections, was 1,818,232,193 tons, an increase of 65,042,254 tons over the tonnage carried in the preceding year. The aggregate ton-mileage was 262,955,605,123, exceeding the ton-mileage of 1911 by 9,499,215,886.

Operating Revenues.—The operating revenues in the fiscal year 1912, of the lines included in the Commission's abstract of July 1, 1913, were $2,826,917,967, as compared with $2,772,733,828 in 1911. The Commission's "Bulletin of Revenues and Expenses," issued Sept. 5, 1913, shows that this increase continued throughout the fiscal year 1913. This bulletin, which covers a somewhat smaller mileage than the abstract of July 1, 1913, discloses operating revenues aggregating $3,057,163,763 in the fiscal year 1913, as compared with a total of $2,768,963,853 of operating revenues in 1912.

The following table shows the sources of operating revenues of the railroads covered by the bulletin issued by the Interstate Commerce Commission Sept. 1, 1913, in the fiscal years 1912 and 1913:

OPERATING REVENUES

	1912	1913	Percentage of Total Operating Revenues, 1913.
Freight revenue	$1,902,742,853.03	$2,134,584,675.86	69.82
Passenger	641,594,147.09	678,487,867.25	22.19
Other transportation	195,837,469.81	210,804,502.14	6.90
Non-transportation	28,789,383.52	33,287,717.53	1.09
Total	$2,768,963,853.45	$3,057,163,762.78	100.00

Operating Expenses. — The operating expenses of the lines covered by the Commission's abstract of July 1, 1913, were $1,958,963,431 for the fiscal year 1912, as compared with $1,901,399,475 in 1911. The operating expenses of the lines covered by the Commission's bulletin of Sept. 5, 1913, show a further increase, from $1,914,960,351 in the fiscal year 1912 to $2,118,585,897 in 1913. The operating expenses of the fiscal years 1912 and 1913, as given in the bulletin on revenues and expenses of Sept. 5, 1913, were distributed among the main classes of expenditure as follows:

OPERATING EXPENSES

	1912	1913	Percentage of Total Operating Revenues, 1913
Maintenance of way and structures	$357,583,429.82	$407,171,756.34	13.32
Maintenance of equipment	439,997,245.83	501,671,011.01	16.41
Traffic expenses	59,203,342.86	61,391,495.37	2.01
Transportation expenses	994,986,281.00	1,074,943,310.41	35.16
General expenses	69,190,051.34	73,408,323.39	2.40
Total	$1,914,960,350.85	$2,118,585,896.52	69.30

Net Income.—While the operating revenues of 1912 were greater than during the preceding year, this was also true of operating expenses. As a result the "net operating revenue" of the year 1912 was less than in 1911. In 1912, according to the abstract of July 1, 1913, they aggregated $867,954,536, as compared with a corresponding return of $871,334,353 in 1911. In the fiscal year 1913 there was an increase in net operating revenue, the Commission's bulletin of Sept. 5, 1913, showing returns of $938,577,866 in 1913, as compared with $854,003,503 in 1912. The bulletin of Sept. 5, moreover, after accounting for outside operations and taxes, shows a total "operating income" for the lines covered of $815,600,972 in 1913, as compared with $738,059,640 in 1912. The ratio of net operating revenues to total operating revenues, however, was 30.70 per cent. in 1913, as compared with 30.84 per cent. in 1912, and the ratios of operating expenses to operating revenues were in the two years, respectively, 69.30 and 69.16 per cent.

Statistics showing the total "net corporate income," the net income remaining after "other income" has been added to operating income and after all rents, interests, and similar deductions have been subtracted, are not as yet available for the fiscal year 1913. It is in this, the final return representing clear net income, that the lines suffered a heavy decline in 1911 and 1912. The abstract of July 1, 1913, shows a net corporate income of $401,819,491 for the fiscal year 1912. The corresponding returns in 1911 and 1910 were $491,111,067 and $516,594,722, respectively. The returns of net corporate income are not exactly comparable, because the mileage covered by the abstracts of the three years are not identical, but they are sufficiently similar to

disclose the decline in net income which the railroads have suffered in recent years.

Capitalization.—The increase in capitalization, due largely to the issue of new securities for construction and improvement purposes, has continued since the last issue of the YEAR BOOK. Complete data for the year 1913 are not at present available, but the total par value of railroad capitalization on June 20, 1912, was $19,533,750,802, as compared with $19,208,935,081 on June 30, 1911. The assignments of capitalization as reported in the abstracts of the Interstate Commerce Commission for the years 1911 and 1912 are as follows:

CAPITALIZATION

CLASSES OF SECURITIES	1911	1912
Common stock	$7,074,917,501	$6,882,813,008
Preferred stock	1,395,800,052	1,586,747,679
Mortgage bonds	7,825,269,102	8,019,700,886
Collateral trust bonds	1,183,766,188	1,279,128,266
Plain bonds, debentures and notes	951,377,816	1,067,567,350
Income bonds	261,777,220	263,441,054
Miscellaneous obligations	195,430,395	116,170,300
Equipment trust obligations	319,596,749	318,182,259
Total capital	$19,208,935,081	$19,533,750,802

Dividends.—The railroads covered by the abstract of July 1, 1913, declared dividends in the fiscal year 1912 aggregating $400,308,609. Those covered in the abstract of the preceding year declared dividends amounting to $460,195,376.

Railroad Consolidation.—It is chiefly the change in mileage of various railroads during the current year which made it necessary to reconstruct the table of railroad systems contained in previous issues of the YEAR BOOK. The leading groups and systems as made up by line construction, stock ownership, outright purchase, merger, lease, and community of interest, may now be grouped as shown in the table on the following page.

The total mileage of the 13 groups contained in the table is 204,074, as compared with 204,095 in 1912 and 201,638 in 1911. The leading event of the year in the field of railroad consolidation was the dissolution of the Union Pacific-Southern Pacific system. On June 30, 1913, after much negotiation, a plan designed to carry out the dissolution decree of the U. S. Supreme Court was approved by the U. S. District Court of Utah. The purpose of the court being to prevent both intercorporate relationship and relationship through individual stock holdings, it was decreed that not only shall the Union Pacific and Oregon Short Line dispose of their Southern Pacific stock holdings, but that such holdings may not be sold to the stockholders of the Union Pacific. To give effect to this ruling it was agreed (1) that the defendents may exchange 382,924 shares of Southern Pacific stock for 425,472 shares of Baltimore & Ohio stock owned by the Pennsylvania Railroad, and (2) that the remaining Southern Pacific holding, 883,576 shares, shall be deposited with a trustee, the Central Trust Co. of New York, the shareholders of the Union Pacific being given the right to subscribe to so-called certificates of interest in the shares so deposited. These certificates entitle the holder to the dividends declared on the stocks which they represent, but if such holder is a Union Pacific stockholder, they do not carry with them any voting power. Certificates sold to persons who are not Union Pacific stockholders may, upon duly executed affidavit, be exchanged for the Southern Pacific shares which they represent. It remains to be seen how the practical relations between the Southern and Union Pacific will ultimately be affected by this dissolution of stock holdings. The business organizations of the two roads have been separated, but the officials of the two systems are those which formerly were directly associated. The chairman of the executive committee of the Southern Pacific formerly was the director of operation of the Union-Southern Pacific system.

The Government has instituted proceedings to compel the Southern Pa-

PRINCIPAL RAILROAD SYSTEMS

Systems	Mileage 1912	Mileage 1913
I. Vanderbilt Interests:		
Boston & Albany[1]	392	394
New York Central	3,597	3,750
Lake Shore & Michigan Southern	1,775	1,872
Michigan Central	1,817	1,817
New York, Chicago & St. Louis	563	565
Lake Erie & Western	886	906
Big Four	2,012	2,014
Pittsburgh & Lake Erie	215	223
Chicago, Indiana & Southern	359	359
Other affiliated Eastern lines	1,296	1,229
Toledo & Ohio Central	441	443
Western Maryland[2]	543	543
Chicago & Northwestern	9,800	9,720
	23,696	23,835
II. Pennsylvania Railroad Interests:		
Pennsylvania Lines	11,235	11,258
Norfolk & Western	2,018	2,035
	13,253	13,293
III. Morgan Interests:		
Erie Railroad	2,557	2,552
Pere Marquette	2,330	2,330
Southern Railway System	8,640	8,665
Cincinnati, New Orleans & Texas Pacific	377	337
Mobile & Ohio	1,114	1,122
Atlantic Coast Line System	6,865	6,984
Louisville & Nashville	4,728	4,923
Chicago & Great Western	1,496	1,496
	28,107	28,409
IV. Gould Interests:		
Wabash System	2,628	2,661
Wheeling & Lake Erie	457	459
Missouri Pacific[3]	3,918	3,920
St. Louis, Iron Mountain & Southern[3]	3,315	3,365
St. Louis South Western[3]	1,744	1,709
Texas & Pacific[3]	1,991	1,993
International & Great Northern[3]	1,160	1,160
Denver & Rio Grande[3]	2,773	2,785
Western Pacific[3]	935	937
	18,921	18,989
V. Moore Interests:		
Rock Island System[6]	8,172	8,054
Delaware, Lackawanna & Western System[4]	1,081	998
Lehigh Valley[5]	1,449	1,439
	10,702	10,491

Systems	Mileage 1912	Mileage 1913
VI. Harriman Interests:		
Oregon Short Line	1,762	1,975
Oregon Railway & Navigation Co.	1,920	1,917
Union Pacific System (remainder)	3,871	3,900
Southern Pacific System	10,373	10,361
Illinois Central System	6,332	6,367
Central of Georgia	1,915	1,924
Baltimore & Ohio System	4,510	4,533
Delaware & Hudson	891	885
San Pedro, Los Angeles & Salt Lake	1,137	1,135
Cincinnati, Hamilton & Dayton	1,015	1,015
Chicago & Alton	1,026	1,026
	34,752	34,023
VII. Hill Interests:		
Great Northern	7,482	7,752
Northern Pacific	6,387	6,313
Chicago, Burlington & Quincy	10,584	10,556
Colorado & Southern	1,128	1,127
	25,581	25,748
VIII. Erb-Yocum Interests:		
Minneapolis & St. Louis and Iowa Central	1,586	1,586
Toledo, St. Louis & Western	451	451
Frisco System	7,547	7,497
Chicago & Alton	.....	.....
Chesapeake & Ohio System	2,289	2,332
Missouri, Kansas & Texas	3,399	3,817
Hocking Valley	353	352
New Orleans, Mobile & Chicago[1]	547	404
	16,172	16,439
IX. New Haven Interests:		
New York, New Haven & Hartford	2,091	2,091
Boston & Maine	2,244	2,252
New York, Ontario & Western	566	566
Maine Central	1,204	1,206
Central New England	277	277
Rutland Railroad	468	468
Other lines	196	196
	7,046	7,056
X. Atchison, Topeka & Santa Fe System	10,800	10,780
XI. Chicago, Milwaukee & St. Paul System	9,737	9,684
XII. Seaboard Air Line System	3,158	3,104
XIII. Philadelphia & Reading	2,170	2,223
Grand Total of above groups and systems.	204,095	204,074

[1] Jointly with N. Y., N. H. & H.

[2] Jointly with Gould interests.

[3] Jointly with various other financial interests

[4] Jointly with Standard Oil interests.

[5] Jointly with Drexel-Morgan and other interests.

[6] Jointly with Phelps, Dodge & Co.

[1] Jointly with Louisville & Nashville R.R. Co.

cific to sell its line running from Ogden to San Francisco, the old Central Pacific Railroad. It is announced that the Southern Pacific will resist such dissolution on the ground that the effect of the Sherman Act in that case is retroactive. Such contention would involve a phase of "anti-trust" legislation not formerly emphasized.

It was announced somewhat late in the year that the influence of Phelps, Dodge & Co. in the control of the Rock Island Co. has been largely increased. The Moore interests, however, remain an important factor.

Car Demurrage Bureaus.—The number of car demurrage bureaus has in recent years steadily declined, from 40 in 1900 to 28 in 1911, 23 in 1912, and 22 in 1913. The demurrage bureaus in existence on Nov. 1, 1913, were the following:

Virginia and West Virginia Demurrage Bureau.
North Carolina Demurrage Bureau.
Southeastern Demurrage Bureau.
Alabama Demurrage and Storage Bureau.
Tennessee Demurrage and Storage Bureau.
East Tennessee Demurrage and Storage Bureau.
Louisville Demurrage and Storage Department.
Chicago Demurrage Bureau.
Illinois and Iowa Demurrage Bureau.
Wisconsin Demurrage Bureau.
Lake Superior Car Service Association.
Northern Demurrage Bureau.
Central Demurrage and Storage Bureau.
Missouri Valley Demurrage and Storage Bureau.
Western Demurrage Bureau.
Colorado Demurrage Bureau.
Intermountain Demurrage Bureau.
Montana Demurrage Bureau.
Pacific Car Demurrage Bureau.
Pacific Northwest Demurrage Bureau.
Canadian Car Service Bureau (British Columbia Branch).
Canadian Freight Association.

Accounts and Reports.—The uniform accounting system for railroads having been practically completed, the attention of the Division of Accounts of the Interstate Commerce Commission was turned to the accounting systems of other carriers coming under the Commission's jurisdiction. Much progress has been made in preparing schedules for electric railways, express companies, sleeping car companies, telephone, telegraph and cable companies, and water carriers. The Goodrich Transit case which was mentioned in the YEAR BOOK for 1912 (p. 548) enabled the Commission to proceed with the system of accounts which had been enjoined since Dec. 31, 1910. The completion of the accounting system for pipe lines was delayed, pending the outcome of litigation with respect to the Commission's jurisdiction.

Uniform Classification.—In 1912 a number of the recommendations of the railways' Uniform Classification Committee were adopted by the Official, Western and Southern Classification Committees. The new Official classification became effective March 1, 1912, with substantially no objections by shippers. The new Southern classification became effective in November, 1912, after being protested by various commercial bodies and state commissions and after revision in accordance with recommendations by the Interstate Commerce Commission. The new Western classification, however, was so widely contested that it was suspended by the Interstate Commerce Commission and resulted in an extensive formal decision. In this decision, handed down on Dec. 9, 1912 (25 I. C. C. 442), the Commission has formulated various general principles which shall control in the future, especially in the matter of minimum carload weights and mixtures. Numerous individual ratings which had been contested, moreover, were considered by the Commission, and the carriers comprising the Western Classification Committee were instructed to revise their classification accordingly. "The formal hearings of classification committees hereafter should be made public, after due notice to the interested parties, including state commissions and the Interstate Commerce Commission."

Freight Rates.—Since the year 1911 when the so-called "rate cases" were decided adversely to the railroads, who at that time requested a general advance of 10 per cent. in freight rates, the carriers have been confronted by various disturbing circumstances. Though their tonnage and gross operating revenues have increased, two items of cost have increased so rapidly that the ratio of operating expenses to operating revenues has advanced somewhat and their net corporate income has declined absolutely as well as relatively.

The trunk line railways have consequently renewed their efforts to increase their freight rates, their plea being for an increase of five per cent. The Interstate Commerce Commission is at present considering the request of the carriers, and the decision is awaited with keen interest.

The two leading items of increased cost referred to are the increased wages paid to railway employees and the increase in fixed charges. (1) In 1912 the demands of the railway engineers being arbitrated under the provisions of the Erdman Act, the engineers were granted an increase in wages. Almost immediately following this increase the railway trainmen, who had been granted an increase in 1910, renewed their demands for further increases, and after much wrangling the carriers and trainmen agreed to arbitration by a board of six, in accordance with the Newlands Act of July 15, 1913. This board in November granted a considerable increase in wages (see XVII. *Labor*). The full-crew requirement of various states has, moreover, tended to increase the pay-rolls of the carriers by requiring the employment in some instances of additional trainmen. (2) As stated above, there has been a steady increase in the volume of outstanding railroad securities, largely to supply construction funds for use in building freight and passenger terminal facilities, additional trackage, freight yards, sidings and freight and passenger equipment. The resulting interest payments and other fixed charges have reduced the net income of the carriers.

Aside from the increase in current expenses, the carriers in requesting a 5 per cent. increase in freight rates plead the difficulty of raising further funds for improvement purposes. Though a portion of their increased capitalization consists of stock, the dividends on which are not in the nature of fixed charges, the market for railroad stock is not limitless. Every decrease in net income makes it more difficult to maintain their established dividends and to obtain additional funds for use in improving their service. Under present circumstances the carriers' request for an increase in rates, the railway employees' request for increased wages, and the public demand for improved freight and passenger services are closely interrelated subjects.

The average receipts per ton per mile as reported by the Interstate Commerce Commission on July 1, 1913, was 0.743 cent in the fiscal year 1912, as compared with 0.757 cent in 1911. The average receipts per passenger per mile were 1.985 and 1.974 cents respectively. The average receipts per ton per mile and per passenger per mile for the railway system as a whole during the years 1900 to 1912 are shown in the following table:

Year	Receipts per Ton per Mile, cents	Receipts per Passenger per Mile, cents
1900	.729	2.003
1905	.766	1.962
1906	.748	2.003
1907	.759	2.014
1908	.754	1.937
1909	.763	1.928
1910	.753	1.938
1911	.757	1.974
1912	.743	1.985

FEDERAL LEGISLATION

The Commerce Court.—The present Congress has taken action to abolish the Commerce Court, which was established in the Federal Railway Act of June, 1910. The judges now comprising the Commerce Court are to be assigned to duty as U. S. Circuit Court judges. The abolition of the Commerce Court throws the matter of Federal court review in railroad cases back to the regular U. S. Circuit Courts. Instead of review of the decisions of the Interstate Commerce Commission by a central court, appeals will now be brought in the various circuit courts scattered throughout the country, as was done before the Commerce Court was created. (See also I, *American History.*)

Mediation, Conciliation and Arbitration Act.—On July 15, 1913, the Newlands Arbitration Act was approved. This statute replaces the Erdman Arbitration Act of 1898, relating to the mediation and arbitration of railway labor disputes. The objection to the Erdman Act was that it practically placed the entire respon-

sibility of final decision upon one arbitrator. The arbitration board under the Erdman Act consisted of one company representative, one representative of the company's employees, and a third supposedly neutral arbitrator. The arbitration board under the new act consists of three or six arbitrators, as the interested parties may desire. In case a board of three is desired, each party selects one, and these select a third, or if they fail to select the third member within five days, the Board of Mediation and Conciliation, created by the act, select him. In case a board of six is chosen, each party selects two representatives and these select the other two members, or if they fail to do so within 15 days, the two neutral members are selected by the above-named board. Should either party refuse to agree to arbitration, the other party may apply to the Board of Mediation and Conciliation, consisting of a Commissioner of Mediation and Conciliation and two other officials of the Government. This Board shall then endeavor to bring about an amicable adjustment through mediation and conciliation. In any case in which an interruption of traffic is imminent to the serious detriment of the public interest, the Board may offer its services without application by either party. The Board of Mediation and Conciliation, as duly appointed, consists of Judge W. L. Chambers (Commissioner), Judge Martin A. Knapp, and G. W. Hanger. The dispute between the eastern railways and their trainmen was arbitrated by a board of six, selected in accordance with the provisions of this Act. (See also XVII, *Labor* and *Labor Legislation.*)

Physical Valuation. — An amendment to the Interstate Commerce Act, approved March 1, directed the Interstate Commerce Commission to "investigate, ascertain and report the value of every piece of property owned or used by all common carriers subject to the Interstate Commerce Act." The Act went into effect on May 1. The Commission appointed the same day the following board of five engineers to assist in the formalation of a plan of procedure: R. A. Thompson, valuation expert, California State Railroad Commission; W. D. Pence, chief engineer, Wisconsin Railroad and Tax Commission; J. S. Worley, consulting engineer, Kansas City, Mo.; H. M. Jones, consulting engineer, Nashville, Tenn.; and E. F. Wendt, engineer of the Pittsburgh & Lake Erie Railroad, Pittsburgh, Pa. Late in the month a committee of 18 railroad officials, chosen by the 55 leading roads to promote coöperation with the Commission, was admitted to the councils on preliminary organization. Late in July the Commission reported that the work would occupy five to seven years at an estimated annual cost of $1,921,500, and application was made for an immediate appropriation of $1,500,000 for the organization, by the beginning of 1914, of the corps of engineers required to undertake the work.

Physical valuations of one or more railroads have been made in a number of states. Massachusetts, New York, and Oregon have each valued lines for special purposes. Texas made a comprehensive valuation of all railroads about 20 years ago. Ten states —California, Kansas, Michigan, Minnesota, Nebraska, New Jersey, Oklahoma, South Dakota, Washington, and Wisconsin—have made within recent years, or have in progress, elaborate valuations of all railroads within their borders; of these states all but New Jersey and Michigan, which made their valuations solely for purposes of taxation, have sought in physical valuation a basis for rate making. The methods used by the states, however, are diverse in detail, and while the valuations of the Interstate Commerce Commission will undoubtedly be widely used for purposes of taxation and rate making, they are not likely to be approved except, perhaps, as to original costs. by all the states. (See also I, *American History.*)

RULINGS OF THE INTERSTATE COMMERCE COMMISSION

During the fiscal year 1912 the Interstate Commerce Commission decided 640 formally instituted cases and dismissed 138 by stipulation or otherwise, a total of 778, as compared with 652 during the preceding year. Informal complaints to the

number of 6,550 were docketed during the year, orders were issued in 3,096 special docket cases concerning refunds denying relief from the long and short haul clause were issued, and 120 cases of suspended tariffs were instituted.

Among the principal decisions of the Interstate Commerce Commission since the 1912 issue of the YEAR BOOK are the following:

1. The Express Company Case. See *Express Companies, supra.*

2. The Classification Case. See *Uniform Classification, supra.*

3. In the matter of the Investigation and Suspension of Transcontinental Rates, Westbound (26 I. C. C. Rept. 456). Following the amendment of the long and short haul clause of the Interstate Commerce Act and the proceedings of the Commission regarding transcontinental rates which were reported in previous issues of the YEAR BOOK, the transcontinental roads filed tariffs in which it was proposed to increase many of the commodity rates to the Pacific terminals to or in excess of the rates to interior towns. The proposed increases were mainly, although not exclusively, on those commodities which are not actually or potentially affected by water competition. Upon complaint of the coast terminals these tariffs were suspended, but after hearings were held the contending parties met in informal conferences and by mutual concession adjusted most of the contested rates. In this decision the Commission adjusted those proposed rates which had not been mutually accepted, finding most, although not all of them, to be not unreasonable, and declared the order of suspension to be vacated. (Decided March 10, 1913.)

4. Investigation and Suspension of Commodity Rates Between Missouri River Points (28 I. C. C. Rept. 265).—The proposed increase in various commodity rates between Missouri River points had been suspended upon complaint until May 1, 1913, and was later resuspended until Nov. 1, 1913. Later, however, after a conference between the contending parties held prior to the hearing before the Commission, it was mutually agreed that some of the present rates be continued, that certain increases be modified, and that most of the remaining increases be allowed to stand. In this decision the Commission adjusted the few rates which were not accepted in the conference, finding the proposed increases to be not unreasonable. A special point was made as regards the failure of the complainants to offer witnesses. It was held that "while the law casts upon the respondents the burden of showing that the increased rates are reasonable, it is but fair that parties at whose instance suspensions are ordered should present to the Commission all facts, circumstances, conditions, or reasons which, in their opinion, tend to show that the increases should be allowed." (Decided Oct. 6, 1913.)

5. Investigation of Advances in Rates by Carriers in Official Classification Territory (27 I. C. C. Rept. 384).—The trunk-line railroads, feeling that circumstances have changed since the rate decision of February, 1911, requested the Commission to reopen the case and to consider the reasonableness of a 5 per cent. increase in all freight rates. The Commission decided not formally to reopen the former rate case, but rather to institute a general proceeding of investigation on its own motion with a view of determining the following matters:

(*a*) Do the present rates of transportation yield to common carriers by railroad operating in official classification territory adequate revenues?

(*b*) If not, what general course may carriers pursue to meet the situation?

The findings of the Commission, which will follow the investigation now being made, will constitute the most important railway event since the adverse rate decision of two years ago. (Decided June 21, 1913.)

6. The New England Investigation (27 I. C. C. Rept. 560).—Owing to "persistent complaints touching railroad conditions in New England, the most serious of which was against the freight service upon the Boston & Maine," the Commission undertook an investigation. In a lengthy report the Commission stated, among other findings, the following:

(*a*) Aside from matters of safety which were not considered, New England should be well satisfied upon the whole with the passenger service of the New Haven and the Boston & Maine lines.

(*b*) The freight service of the New Haven is inferior to what it should be, although fairly comparing with that in other sections where conditions are substantially the same. The freight service upon the Boston & Maine Railroad during the period covered was extremely poor, and justified in a great measure the criticisms it received, but a very earnest attempt is being made to correct these conditions, which has already produced results.

(*c*) The local freight rates of New England are slightly higher than, but on the whole compare favorably with, the average in official classification territory; they are lower than those in other parts of the country, except the Commission-made rates in certain states. The long-distance rates are lower from and to New England than from and to any other section. Its passenger fares have been more favorable to the local traveling public than in any other portion of the United States.

(*d*) The outside financial operations of the New Haven Company for the last nine years have been wasteful in the extreme, and the methods by which those operations have been conducted are unnecessarily involved and complex. While expenditure on its road and equipment has been with a free hand, there is nothing to show that it has not been wisely made, and much to indicate that the result has fully justified the outlay. The financial condition of this company calls for careful consideration and prudent action, but gives no occasion for hysteria.

The Commission pointed with disfavor to the holding of New England railroads in steamships and trolley lines, but expressed no opinion as to the New Haven-Boston & Maine merger. No opinion was expressed as to the advisability of raising freight rates on the Boston & Maine, but the carrier was invited to present detailed data and such rate schedules as it may propose. This has been done, and the findings of the Commission in the matter of rates are expected in the near future.

The Commission expressed opinions on various phases of railroad regulation as follows:

> Every interstate railroad should be prohibited from expending money or incurring liability or acquiring property not in the operation of its railroad or in the legitimate improvement, extension, or development of that railroad.
>
> No interstate railroad should be permitted to lease or purchase any other railroad, nor to acquire the stocks or securities of any other railroad, nor to guarantee the same, directly or indirectly, without the approval of the Federal Government.
>
> No stocks or bonds should be issued by an interstate railroad except for the purposes sanctioned in the two preceding paragraphs and none should be issued without the approval of the Federal Government.

7. Lake and Rail Class Rates from Pennsylvania and New York Points to St. Paul and Other Destinations (26 I. C. C. Rept. 669).—The proposed rate advances through Lake Superior ports were found not to have been justified. (Decided April 15, 1913.)

8. Lake and Rail Rates from Central Freight Association and Trunk-Line Territory to Minneapolis and Other Points in the Northwest (26 I. C. C. Rept. 671).—The proposed rate advances were not sustained. (Decided April 15, 1913.)

9. Lumber from Louisiana to North Atlantic Points (26 I. C. C. Rept. 186).—The proposed advances in rail-water-rail rates on cypress lumber were not sustained. (Decided Feb. 4, 1913.)

10. Lumber Rates from Memphis and Other Points, New Orleans, etc. (27 I. C. C. Rept. 471).—The proposed advances in lumber rates from Memphis to New Orleans were sustained, but the request that the rates from intermediate points to New Orleans be higher than the rates from Memphis was denied. The proposed advances on rates on lumber shipped from various points other than Memphis were not sustained. (Decided June 16, 1913.)

11. Commercial Club of the City of Duluth *v.* B. & O. Railroad Co. *et al.* (27 I. C. C. Rept. 639).—The Commission declared the rail and lake class rates from points east of the Indiana-Illinois state line to be unreasonable and prescribed reasonable rates for the future. It also disapproved the undue rate discriminations against towns adjacent to the twin cities, fourth-section violations, and evasions and manipulations growing out of the loose policing of transit privileges at Duluth. It denied, however, the request that through rates to the Northwest be broken at Duluth instead of at the twin cities. (Decided June 9, 1913.)

12. Coke Producers' Association of the Connellsville Region *v.* B. & O. Railroad Co. *et al.* (27 I. C. C. Rept. 125).—The rates on coke from the Connellsville region to Youngstown, Canton, Cleveland, Toledo, North Cornwall, Robensonia, Reading, Phila-

delphia, Baltimore, and Newark were held to be unreasonable *per se*. The present relationship of rates as between the Connellsville and Fairmount districts, however, was approved by the Commission. (Decided May 29, 1913.)

13. In the matter of the Investigation of Alleged Irregularities and Discrepancies in the Weighing of Freight by Carriers (28 I. C. C. Rept. 7).—After making an investigation of weighing and discovering many irregularities, the Commission recommended that some Federal tribunal, perhaps the Commission, be given power: to fix the points at which track scales shall be installed; to prescribe the standard of such scales and their installation; to test or supervise the testing of such scales; and to supervise their operation. (Decided June 18, 1913.)

LEADING COURT DECISIONS

The Minnesota Rate Case.—One of the most important Supreme Court decisions in recent years was the decision in the so-called Minnesota Rate Case of June 9, 1913 (33 Sup. Ct. Rept. 729). Various Minnesota freight rate statutes and Commission orders concerning only the rates on intrastate traffic had been contested on the ground that they practically compelled a change of interstate rates and thereby infringed upon the powers of the Federal Government. The decision concerned the relative powers of the Federal Government and the state over strictly intrastate freight rates. The Supreme Court ruled that the power of Congress over interstate commerce is preëminent and that Congress has the constitutional power to fix intrastate rates which are of such a nature that their change would in fact compel the change of interstate rates. It decided, however, that since Congress had not seen fit to exercise this power, but on the contrary had expressly limited the Interstate Commerce Commission to interstate rates, the right of the legislature and the Railroad and Warehouse Commission of Minnesota to fix reasonable intrastate rates would not be disturbed by the courts. The exercise of Federal power over intrastate rates to the exclusion of state power does not rest with the courts, but with Congress. In the matter of relative constitutional power, therefore, the decision was a step toward increased Federal supervision, but in its immediate effect upon rates it was a victory for the state of Minnesota, for its power to regulate remains intact unless Congress should in the future decide to exercise its superior Federal power.

Aside from the constitutional issue of relative Federal and state power, the court in ruling on the particular rates which had been contested discussed at length the general question of railroad valuation. Its findings on that issue may exert considerable influence upon future valuations, whether by the states or the Federal Government.

The rates which had been fixed on the intrastate traffic of the Northern Pacific and Great Northern railroads were upheld. Those fixed in case of the Minneapolis & St. Louis were under present circumstances held to be confiscatory.

Additional Rate Cases.—On June 16, 1913, the Supreme Court rendered its decision in the various rate cases in which the state laws of Missouri, Oregon, Arkansas, and West Virginia were contested. Since the underlying principles were the same as in the Minnesota Rate Case, they were decided in the same manner. The contested rates were upheld, except that in the case of certain lines where their imposition would be confiscatory, they were suspended until the condition of the roads improves. (See also IX, *Law and Jurisprudence.*)

STATE LEGISLATION

Railroad and Public Utilities Commissions.—The year 1913 has been replete with railway legislation, for not only were there 42 state legislatures in session, but in many instances special attention was paid to the regulation of railways and other public utilities. The table of railway commissions of former issues of the YEAR BOOK has been changed in many respects. At present the following states and territories have commissions of the types indicated:

STATE COMMISSIONS REGULATING RAILROADS

Advisory Powers	Mandatory Powers over Railroads	Public Utilities Commissions	Corporation Commissions	No Commission
None	Alabama Arkansas California Florida Iowa Kentucky Louisiana Michigan Minnesota Missouri Mississippi Nebraska Nevada North Dakota South Carolina South Dakota Tennessee Texas	Colorado Connecticut District of Columbia Georgia Hawaii Idaho Illinois Indiana Kansas Maryland Maine Massachusetts Montana New Jersey New York New Hampshire Ohio Oregon Pennsylvania Rhode Island Vermont Washington West Virginia Wisconsin	Arizona North Carolina Oklahoma Virginia	Delaware New Mexico Utah Wyoming

There are no longer any commissions with merely advisory powers, Pennsylvania, the last state with such a commission, having adopted a public utilities commission. There are 18 railroad commissions with mandatory powers, as compared with 24 in the preceding year, and four states continue to have corporation commissions. The strength of the present tendency toward public utilities commissions is shown in the increase in the number of states having such commissions, from 13 in 1912 to 22 in 1913. Two territories, moreover, Hawaii and the District of Columbia, have adopted such commissions during the past year. The total number of state commissions increased from 42 to 44.

One of the most important enactments of the year was the Public Service Company Act, of Pennsylvania (Pa., 1913). Pennsylvana was the last of the great commercial states to create a railroad commission with mandatory powers, but when the step was finally taken, the statute was made far reaching and in full accord with recent legislation in other states. It brought within its scope not only railroads, but other public utilities. The Pennsylvania act applies to 27 classes of corporations: railroads, canals, street-railway, freight-line, express, baggage-transfer, pipe-line, ferry, common-carrier, sleeping-car, dining-car, tunnel, turnpike, bridge, wharf, inclined-plane, grain-elevator, telegraph, telephone, natural and artificial gas, water, water-power, heat, refrigerating, and sewage. The Commission, which is appointive and consists of five members, has extensive powers. (1) It has the power, after investigation made on complaint or on its own initiative, to fix reasonable maximum rates, which include joint rates, classifications, track-storage charges, transfers, demurrage, the form of tariffs, and all rules and regulations affecting rates. To aid in giving effect to this rate-making power, the statute contains the usual prohibition against unjust discriminations and extortions, and the usual requirements that rates shall be published and filed and shall not be changed except after a notice of 30 days, unless special permission to change them on shorter notice is obtained from the Commission. (2) The Commission has mandatory powers over the service rendered, with a view to assuring adequacy and safety. It is specifically given power to require the making of physical connections between railways, telegraph lines or other utilities coming within the statute, and the establishing of through routes,

to adjust line schedules, to require the construction of switch connections with lateral lines or private side tracks, to establish reasonable standards of service, and to require all needful repairs, alterations, improvements, and extensions of facilities and service. In order to promote safety, it is required that all accidents be immediately reported to the Commission, which is given power to investigate their causes. It is given detailed powers in connection with the construction, guarding, or removal of grade crossings. (3) The companies are required at or before the time they issue stocks or bonds to file with the Commission a statement setting forth all pertinent facts in connection with their issue, including a statement of the price at which sold and the consideration received, whether money, property, or services, and of the purposes for which the funds will be used. The Commission is empowered to require a full accounting and to ascertain whether the funds were used for the purposes set forth in the company's statement. In accordance with the recommendations of the National Securities Commission, the Pennsylvania Commission is not given the power to prevent an issue of securities, if such issue complies with the laws of the state. (4) It is given the power to establish uniform accounting systems. (5) It may ascertain the value of the property of any public service company. (6) It has full power to require reports, the production of books and papers, the attendance of witnesses, and the giving of testimony. Appeals from the Commission are limited to one state court, the Court of Common Pleas of Dauphin County. No new evidence shall be received on the hearing of the appeal, unless the court is convinced that evidence has been discovered which could not have been obtained for use at the hearings before the Commission. In such case, moreover, the court may remand the proceedings back to the Commission.

Another important statute is the law replacing the old Railroad and Warehouse Commission of Illinois with a Public Utilities Commission (Ill., 1913, p. 460). An appointive Commission of five members is given power to regulate the charges and services of all interstate carriers, telegraph, telephone, heating, lighting, refrigeration, power, electric, water, oil or gas pipe-line, warehousing, express, and wharfing companies. In addition to the usual powers over charges and services, the Illinois Commission has the power to prevent or oppose stock and bond issues and consolidations, mergers, and intercorporate relationships, to determine a valuation of property, regulate car distribution, and to compel the construction of sidings and physical connections and the making of needed additions and improvements to plant, equipment, and facilities. It may also prevent or approve the construction of new lines or plants. It may investigate accidents, require the installation of safety appliances, and regulate grade crossings.

The state of Idaho adopted a Public Utilities Commission (Idaho, 1913, Ch. 61) with jurisdiction over railroads, street railways, express, dispatch, sleeping-car, dining-car, drawing-room car, freight-line, refrigerator, oil-car, stock-car, fruit-car, car-loaning, car-renting, car-loading, and every other car corporation or person, and over pipe-line, gas, electric, telephone, telegraph, water-supply, navigation, wharfing, and warehouse companies. It is an appointive Commission of three members. Aside from the matter of stock and bond issues, consolidation, merger, and intercorporate relationships, its powers are similar to those of the Illinois Public Utilities Commission.

The newly created Public Service Commission of West Virginia (W. Va., 1913, Ch. 9) has jurisdiction over all common carriers, railroads, street railways, express, sleeping-car, freight-line, car, tool, bridge, ferry, telegraph, telephone, pipe-line, gas, electric lighting, heating or power companies. It is given wide powers over charges and services, although they are not so fully stated as in the Pennsylvania, Idaho, and Illinois statutes. The law requires the Commission to make a valuation of the property of public utilities. The Commission is, moreover, required to administer the West Virginia Workmen's Compensation Fund, created during the last session

of the legislature (W. Va., 1913, Ch. 10).

Statutes converting former railroad commissions into public utilities commissions were enacted in Colorado, Maine, Indiana, Massachusetts, and Montana. These statutes are based largely upon those of New York and Wisconsin. Utilities commissions were likewise adopted in the District of Columbia and Hawaii. Altogether, 10 public utilities commissions were created in the sessions of 1913. The Oregon public utilities statute of 1911 was referred to the voters by popular referendum and was approved. (See also XI, *Public Services.*)

Freight Rate Acts.—In addition to the public utilities acts referred to above, several special laws were enacted. In Florida a long and short haul clause was adopted (Fla., 1913, Ch. 6523). In Minnesota the law prohibiting unfair discriminations was redrafted (Minn., 1913, Ch. 90), and the Railroad Commission was empowered to make a schedule of maximum rates and establish joint through rates (Minn., 1913, Ch. 344).

Passenger Fare Acts.—A two-cent fare law was adopted in Illinois (Ill., 1913, p. 508), and a two-cent fare law, applicable to railways with gross earnings equal to or greater than $1,200 a mile, was enacted in Minnesota (Minn., 1913, Ch. 536). The Minnesota legislature also required railroads to issue family interchangeable mileage books (Minn., 1913, Ch. 51). The Oklahoma Corporation Commission was given power to fix passenger fares (Okla., 1913, Ch. 130) and to adjust two-cent fare refunds (Okla., 1913, Ch. 248). A Connecticut statute prohibited the sale of special bargain or excursion tickets in the state on Sundays (Conn., 1913, p. 1814).

Safety Statutes.—In addition to the provisions in the various public utilities acts concerning accidents, grade crossings, safety appliances, and the like, numerous other laws concerning public safety were enacted. Laws regulating grade crossings were enacted in Arkansas (Ark., 1913, pp. 328, 1104), Kansas (Kan., 1913, pp. 174-6), Maine (Me., 1913, p. 190), Minnesota (Minn., 1913, Ch. 78), Nebraska (Neb., 1913, pp. 233, 265), New York (N. Y., 1913, Ch., 354, 425, 744), and Washington (Wash., 1913, Ch. 30).

Laws limiting the hours of labor of trainmen, telegraphers, and dispatchers were enacted in California (Cal., 1913, p. 381), Nevada (Nev., 1913, Ch. 283), and New York (N. Y., 1913, Ch. 466), the last being an amendment to a former statute.

Statutes regulating locomotive headlights were enacted in California (Cal., 1913, p. 22), Florida (Fla., 1913, Ch. 6526), Illinois (Ill., 1913, p. 506), Michigan (Mich., 1913, p. 112), Minnesota (Minn., 1913, Ch. 93), Nevada (Nev., 1913, p. 26), Nebraska (Neb., 1913, p. 499), and North Dakota (N. D., 1913, p. 376). An Arkansas statute requires railroads to build fences along their right of way (Ark., 1913, pp. 169, 1136). The Georgia legislature required the erection of signboards (Ga., 1913, p. 114). An Illinois law provides for the appointment of inspectors who shall inspect automatic couplers, power brakes, grab irons, surface and track conditions, the condition of train yards, and the sanitary condition of cars; they are also assigned to the investigation of accidents. A Kansas statute regulates the number of flagmen (Kan., 1913, p. 432), another penalizes tampering with signals (Kan., 1913, p. 433), and a third regulates switch lights (Kan., 1913, p. 434). Trespassing was prohibited in Rhode Island (R. I., 1913, p. 87) and Washington (Wash., 1913, Ch. 128). Derailing devices were required by law in Texas (Tex., 1913, p . 334).

Train-Crew Laws.—Statutes regulating the number of persons comprising train or switching crews were enacted in Arkansas (Ark., 1913, p. 211), California (Cal., 1913, p. 249), Connecticut (Conn., 1913, p. 1834), Nebraska (Neb., 1913, p. 157), Nevada (Nev., 1913, p. 62), New York (N. Y., 1913, Ch. 146), Missouri (approved April 16, 1913), Indiana (Ind., 1913, Ch. 215), Kansas (approved April 23, 1913), Ohio (approved April 23, 1913), Oregon (approved Feb. 25, 1913), New Jersey (approved April 1, 1913), New York (approved March 31, 1913), and Wisconsin (Wis., 1913, Ch. 63). So numerous have these statutes become that they are an item of con-

siderable importance in railroad operating costs.

Miscellaneous Statutes. — A s i d e from provisions in the various public utilities statutes, special laws concerning physical valuation were enacted in California (Cal., 1913, p. 683), Minnesota (Minn., 1913, Ch. 125), and Washington (Wash., 1913, Ch. 182). In Delaware (Del., 1913, Ch. 190) the contents of railroad reports to stockholders were fixed by law. The Florida Commission was authorized to audit the accounts of railroads and express companies. The Commission of North Dakota was empowered to fix uniform systems of accounts (N. D., 1913, p. 379). Laws requiring bulletins showing the arrival of trains were enacted in Kansas (Kan., 1913, p. 433) and in Texas (Tex., 1913, p. 350). Another Texas law requires dispatchers to keep the public informed as to train movements (Tex., 1913, p. 318). Texas also enacted a revised reciprocal demurrage law (Tex., 1913, Ch. 16). Laws regulating railroad cabooses were enacted in New York (N. Y., 1913, Ch. 497) and Nebraska (Neb., 1913, pp. 204, 626). The establishing of physical switch connections and sidings was the subject of legislation in Michigan (Mich., 1913, pp. 711, 742), Nebraska (Neb., 1913, p. 337), and Florida (Fla., 1913, Ch. 6527). The Indiana legislature enacted a law prescribing the qualifications of trainmen (Ind., 1913, Ch. 43, 232).

The Nebraska Commission was given power to fix the rates of telegraph companies (Neb., 1913, Ch. 62), the South Carolina Commission to regulate interurban railways (S. C., 1913, p. 179), and the California Commission to approve or prevent the construction of wharves. A Connecticut statute provides that the Commission must be notified of all mergers, dissolutions, etc., of public service companies (Conn., 1913, p. 1816). The Commission law of Florida was restated so as to make its meaning clear and to enhance the powers of the Commission (Fla., 1913, Ch. 6507). In West Virginia railroads were prohibited from consolidating, leasing, owning or holding stock in parallel or competing lines (W. Va., 1913, p. 124). An amendment to the Minnesota securities law prohibits issues of railroad stock at less than 90 per cent. of its par value (Minn., 1913, Ch. 384).

Bibliography

Among the current statistical publications of the year, not listed in previous issues of the Year Book, are the following:

Interstate Commerce Commission.—*Preliminary Abstract of Statistics of Common Carriers, 1912.* Issued July 1, 1913.

—— *Bulletin of Revenues and Expenses.* Issued Sept. 5, 1913.

Bureau of Railway Economics.—*Summary of Revenues and Expenses of Steam Roads in the United States.* Bulletins 43 to 52. (Washington, 1913.)

Among the important general publications of the year are the following:

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XXIII. ENGINEERING

CIVIL ENGINEERING

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Bridges.—Three large steel bridges are engaging the attention of engineers at present: the Hell Gate arch at New York City, the new Quebec bridge across the St. Lawrence, and a large cantilever across the harbor between Sydney and North Sydney, N. S. W. The Hell Gate arch, a part of the short-line railway making a track connection between the Pennsylvania Railroad at New York and the New York, New Haven & Hartford in New England (*A. Y. B.*, 1912, p. 555), is the longest steel arch in the world, being 1,000 ft. in span, and is approached on either side by concrete arch viaducts nearly three miles in total length. At the end of 1913 the approaches were more than half completed and work was well along on the two enormous concrete abutments for the steel arch. Steel erection will probably begin toward the end of 1914.

The Quebec bridge across the St. Lawrence near Quebec, Canada, is to replace the one which collapsed during construction in August, 1907. It is of the same general type and span as the previous one, a 1,800-ft. clear span cantilever, but has been modified in design to correct the weaknesses displayed by its predecessor. This modification involves a wider and heavier steel framing, which required entire reconstruction of the piers. These piers were practically completed during 1913, being sunk with very large compressed-air caisson cribs, and progress is being made on the fabrication of the steel work. Completion is still some years away.

The Sydney bridge is to be a 1,600-ft. cantilever, being surpassed in span only by the Quebec and the Firth of Forth, Scotland, bridges. It was decided on during 1913 after a long controversy and successively reversed decisions in favor of a bridge, a tunnel, and finally a bridge for the crossing.

This question of the relative superiority of a bridge or a tunnel for a wide river crossing is under discussion also in connection with the Hudson River at New York City. Commissions in the states of New York and New Jersey have long been studying connection between Manhattan and the New Jersey shore. In 1913 the New Jersey commission, as a result of an investigation by consulting engineers, reported that it would be advisable to build a suspension bridge, having eye-bars and not cables as the suspending members, across the river between Fifty-eighth Street, Manhattan, and Sixth Street, Weehawken, and two highway tunnels from Canal Street, Manhattan, to Twelfth Street, Jersey City. The bridge would have a span of 2,730 ft., by far the longest in the world, and would cost, with land condemnation, about $42,000,000; the tunnels would have an interior diameter of 30 ft. and would cost about $11,000,000. Although there is no bridge crossing the Hudson south of Poughkeepsie, the high cost of this latest project makes its immediate consummation doubtful.

At Memphis, Tenn., a second large cantilever bridge is being built across the Mississippi. It is to be 2,547 ft. long, and contains spans of 604, 621 and 791 ft. Across the St. Lawrence near Montreal the old Canadian Pa-

cific Lachine bridge has been replaced by a more modern and heavier structure.

Steel bridge design progresses slowly and no marked developments were evident during the year. In the matter of bridge floors, however, a series of serious fires on wooden floors to bridges has drawn the attention of engineers to the high fire risk involved in such construction. The use of creosote to protect the wood against decay seems to increase the inflammability, and it is probable that the additional cost of fire protection or of fire-proof floors will be in the future seriously considered.

While no statistics are available, it is probable that more concrete bridges are being built each year, particularly for small spans and municipal structures where æsthetic considerations rule. The decidedly superior performance of the concrete over the steel bridges during the floods in the spring of 1913 in the middle west (see "Waterways," *infra*) has measurably increased the confidence of the lay and engineering public in them. While this superiority is in part due to the fact that the steel bridges were on the average of longer service, it is largely a result of the greater mass of the concrete structures and their consequent greater resistance against the pressure of the floods.

One of the longest concrete arches in the world is now under construction at Langwies, Switzerland, on the Chur-Arosa Railway. It is to have a clear span of 315 ft. The record for span length is held by the Ponte del Risorgimento, across the Tiber at Rome, with a span of 328.1 ft. (*A. Y. B.*, 1911, p. 688).

Railway Construction.—The last official statistics give the aggregate mileage of railway tracks in the United States on July 1, 1912, as 360,714 miles, of which 120,476 miles was extra trackage. This was an increase over the previous fiscal year of 8,928 miles of trackage, of which 3,167 miles represented yard tracks and sidings. Somewhat less than 3,000 miles of new line was built in the fiscal year. In Canada, during the year ending June 30, 1912, 2,953 additional miles of line were put in operation, 1,738 miles more were reported ready for operation, and about 10,000 miles were under construction. The total mileage in Canada, exclusive of sidings and extra trackage, is about 30,000 miles.

The Commission appointed by President Taft to examine into the transportation question in Alaska (*A. Y. B.*, 1912, p. 556) reported on Jan. 20, 1913. It recommended that two independent lines be constructed, one connecting the Yukon and Tanana River Valleys with tidewater, by way of Cordova, Chitina, and Fairbanks, and the other running from Seward around Cook Inlet and connecting with the Kuskokwim and Sustina River systems. These two roads would connect tidewater with the Bering River and Matanuska coal fields, the main object of the new systems. The plan involves 733 miles of new construction at an estimated cost of $35,000,000. (See I, *American History;* and VIII, *Alaska.*)

Railway Valuation.—The Physical Valuation Act passed by Congress in February, involves one of the largest pieces of engineering work ever undertaken. By this act, the Interstate Commerce Commission is ordered to proceed to the valuation of the property of every common carrier subject to its jurisdiction. For this work the Commission has appointed a Railway Valuation Board of five engineers and has started the organization of a bureau which will eventually comprise five or six hundred employees, mostly engineers. To cooperate with the government practically all the large railways have organized valuation boards of their own. (See also I, *American History;* and XXII, *Railroads.*)

Railway Terminals.—The question of railway terminals is one that is seriously troubling both municipal and railway officials. With the enormous growth of railway travel and an awakening sense of civic beauty, reforms both in accommodation and in appearance have been demanded, so that to-day the railway station, the "gate of the city," must be among the show places, and at the same time provided with sufficient trackage to insure easy movement of trains within and so located as to have easy access to local transit systems without.

The monumental stations of the last few years have been a decided drain on the resources of the railways, and involve expenditures which cannot be directly paid for by increased earnings. Nevertheless, precedents have become so fixed that it must be recognized that the railways in the future will have to figure on large sums for stations, over above the amount required for purely utilitarian construction, though in some cases the responsibility of the city itself is being recognized and a certain proportion of the excess cost charged to artistic effect is being assumed by the city. In most cases, too, there is a reasonable conference between city and railway as to the design and layout of the terminals so as to insure the greatest service to both parties to the transaction.

In Chicago such a conference is now in progress. There are six railway terminal stations in the city, for four of which plans for reconstruction have been made. In addition, the city and certain civic societies have a city plan which includes plans for one or more large terminals replacing those already in use. The various interests to be served make the situation very complicated. John F. Wallace, who was the first chief engineer of the Panama Canal, has been retained by the city to report on a feasible plan for terminal construction. The new Grand Central Station in New York City was opened to the public in February, and the Union Station at Kansas City, another very large project, toward the end of the year.

Subways.—Construction on the new dual system of subways in New York City has progressed favorably during the year. A remarkable feature of the work has been the freedom from street obstruction over the subway construction. The present subway, dug in the open for most of its length, so effectually closed the streets during construction that practically no business was done in them, but the new subways are being dug either in tunnel or under timber roofings forming the street surface, with no nuisance except for the rough appearance of the streets and occasional head houses. In 1913 the Center Street subway connecting the Manhattan end of the Williamsburg Bridge and the Municipal Building near City Hall Park was put in operation. The Manhattan and Brooklyn Bridge connections will be made in 1914. (See also "Tunnels," *infra.*)

In Chicago a Harbor and Subway Commission has under consideration a system of municipally owned subways. The commission was organized in December, 1911, but up to the present its activities have covered preliminary plans only. It is stated that there is no prospect of construction work until after April, 1914, when a referendum vote is to be taken on alternative systems, one a limited down-town system to cost about $17,000,000, the other a comprehensive city-wide system to cost about $70,000,000.

A comprehensive subway system has been planned for Philadelphia to supplement the present Market Street line. This includes a Broad Street line, north and south, a terminal loop in the heart of the city, and elevated connections northeast and southwest. The cost of construction is estimated at $30,000,000 and the cost of equipment at $8,000,000. Enabling legislation is being sought.

Three subways or extensions are now under construction in Boston: the Boylston Street line under Boylston Street from Commonwealth Avenue and Beacon Street to the Park Street terminal, 1¾ miles; the Dorchester tunnel, a continuation of the Cambridge subway, which will furnish a through line from Harvard Square to Andrew Square, 2.1 miles; and the East Boston tunnel extention, ½ mile. Their total cost will be about 15½ millions and their completion is some years away.

In Pittsburgh an ordinance granting a franchise to build a subway system was passed by the City Council on Feb. 7, 1913, but was vetoed by the Mayor. No further action has been taken. (See also XI, *Public Services.*)

Tunnels.—The usual number of railway tunnels were driven during the past year, with no especial improvements or innovations in method. One novelty was brought out by John F. O'Rourke, a New York con-

tractor, in the way of a concrete block lining for rock tunnels. These blocks, which are cast in a yard, are interlocking and are placed in the heading as it is blasted out, as a self-supporting arched lining, which at the same time takes the place of the usual timbering to hold the loose rock and acts as a final lining to the tunnel.

In driving the Mount Royal tunnel for the Canadian Northern Railway under the city of Montreal (*A. Y. B.*, 1912, p. 557), an American monthly record for fast driving of a heading in hard rock was made. In May, 1913, 810 ft. of 8- by 12-ft. heading was driven in 31 days. The following table gives the distances and yardage for the record month in the four record hard-rock tunnel operations; the Astoria gas tunnel (see *infra*) leads in yardage, but on account of its large section, 16¾ by 18 ft., has not a record distance driven in any one month.

Name and Location	Section, Feet	Nature	Average Progress per Day in Record Month		Monthly Progress, Feet Single
			Lineal Feet	Cubic Yards	
Loetschberg (Switzerland)...	6½ by 10	Railway	32.6	79	1,013
Mount Royal (Montreal)....	8 by 12	Railway	26	93	810
Astoria (New York).....	16¾ by 18	Gas service	17	100	527
Laramie Poudre (Colorado)..	7½ by 9½	Irrigation	21.0	56	653

In the construction of the Lexington Avenue subway in New York City, the crossing under the Harlem River was made in 1913 by the method made famous in the Detroit River tunnel (*A. Y. B.*, 1911, p. 690). In the Harlem River crossing a tunnel 1,190 ft. long was made by floating out to place and then sinking successively five steel frames, each about 220 ft. long and shaped to conform to the four-track tunnel section. When these frames were bedded in trenches dredged in the river bottom, they were filled to proper shape with concrete deposited under water through long pipes called "trèmies."

Two tunnels were driven under the East River at New York City during 1913, one for the service pipes of the Consolidated Gas Co., at 132d Street, and the other for the new water supply distribution to Brooklyn at Delancey Street. In Baltimore a water tunnel rivaling in size the largest railway tunnels was driven for 1,200 ft. to carry the waters of Jones' Falls, which along the rest of its course was covered by a concrete roof, both to provide a new low-grade street and to cover up an offensive stream; this tunnel is about 28 ft. in diameter and was driven through hard rock.

On Oct. 5 the contract was signed by the City of Denver, Col., and the Denver & Salt Lake Railroad calling for the construction of the so-called Moffat tunnel near the city. The contract is unique in that the city furnishes $3,000,000 of the $4,500,000 required to build the tunnel and is to acquire ownership in 50 years.

Waterways.—During the last week in March and the first two weeks in April the Ohio River Valley was subjected to the most severe floods in the history of the region, with resulting damages far in excess of any similar flood losses in the United States. The peculiar severity was due not only to the extremely high water that prevailed, but to the extent of the flooded area, the concentration of the population and the high character of the improvements.

The winter of 1912 was exceptionally open and frequent rains thoroughly saturated the ground so that by spring the run-off to water courses was much greater than in ordinary seasons, when the ground, opening up after the winter frost, can soak up many inches of rainfall before heavy run-off begins. On March 23 a heavy rain started in the Mississippi Valley and proceeded eastward with increasing violence. From March 24 to 26 the rain was continuous over the entire region from the Great Lakes

to the Ohio River, an area of 150,000 sq. miles, and averaged a total of 5 in., with isolated records of from 9 to 11 in. total for the three days. This mass of water passed into the water courses, which were unable to contain it, with the consequent floods over entire flood plains of the rivers lasting for at least 10 days. The flood passed down the Ohio, reaching a maximum at Cincinnati on April 1 and at Cairo on April 4. Here it encountered a slightly abnormal flood condition in the Mississippi, and brought that river to a flood height equal to the record floods of 1912 (*A. Y. B.*, 1912, pp. 267, 447, 558); because of the superior levee system, however, the damage to lands along the Mississippi was less than in the preceding year. The flood passed New Orleans on April 30, 35 days after the record rainfall in the Ohio valley.

The rainfall was also heavy over northern New York state, with resulting floods along the Genesee, Mohawk and upper Hudson Rivers, particularly at Rochester, Troy and Albany. Practically every city and town on a water course in eastern Indiana, Ohio, northern West Virgina and northern New York was subjected to high water reaching well up into the city streets. The immediate result of such high water was to put out of service the street-car lines, gas and electric companies, power houses, and water and sewer services. As the water rose and acquired velocity and force, it tore out railway embankments, destroyed bridges, buildings, river walls, and, in the few cases where they existed, levees. The floods differed from the ordinary river floods in that they rose in many cases to the very center of the city, instead of merely to the river-edge streets, which as a rule are not occupied by very pretentious buildings. Considering the extent of the flooded area and the character of the country flooded, the loss of life was very low, but the property loss ran into the hundreds of millions. An estimate by the U. S. Geological Survey placed the loss of life at 415, and the property loss at $180,000,000. The cities suffering the greatest damage were Dayton, Columbus, Zanesville, Piqua, Hamilton, Marietta and Middletown in Ohio, and Indianapolis, Terre Haute and Lafayette in Indiana.

It should be clearly understood that the primary cause of the flood was the unprecedented rainfall over so large an area. Without it no flood could have occurred and to prevent it is beyond human ability. It is extremely doubtful if any of the popularly advertised methods of flood control, such as reservoirs, channel deepening or reforestation could have prevented a record flood. On the other hand all of these measures would have served to reduce the height of the flow and the extent of the damage.

To a large extent each community controlled its own water front and channel, which latter in most instances was contracted to the smallest dimensions possible, in order to gain valuable land. This contraction, increased by low-clearance bridges, diminished the flow area, so that it became totally incapable of caring for the high water. The remedy seems to be in some rational control of the water courses of the country, so that the river regulation in each community may be controlled in accordance with a comprehensive plan covering the entire drainage area. Such a scheme was fathered in Congress in 1913 by Senator Newlands of Nevada, but his bill was altogether too ambitious in its scope (appropriating $60,000,000 annually) and failed of passage. There is a probability, however, that some action will be taken toward providing a national commission to investigate and report on a feasible system of flood control, that will not only solve the engineering difficulties, but also the nearly insurmountable constitutional difficulties of national interference in what has hitherto been considered a local matter. Both the Corps of Engineers of the U. S. Army and the U. S. Geological Survey are engaged in a study of the flood situation and both have issued reports on the Ohio Valley floods. Some of the afflicted cities have vigorously prosecuted flood-relief plans, but most of them have devoted their energies to rebuilding. All engineers who have studied the problem assert, however, that the peculiar meteorological con-

ditions that produced the 1913 flood are apt to recur at any time.

The year's progress in river improvement and on public and private canal projects is reviewed in Department X, *Waterways*.

Harbors.—A renewed interest in harbor construction is noticeable in most of the lake and ocean cities of the United States. In New York the Secretary of War sustained the army engineers' objection to extending the pier-head line so as to accommodate the new 1,000-ft. liners, such as the *Imperator*, which made its maiden voyage in June, 1913, but allowed a temporary extension to that length, pending the construction of 1,000-ft. piers in the North River. One such pier was authorized by the city, and construction is to begin at once. The general plan for improving the harbor is still in the hands of the city officials, but is not developing very rapidly. Boston, Mass., and Halifax, N. S., on the contrary, are vigorously prosecuting definite schemes for port improvement.

In Chicago a new commission, with a $5,000,000 appropriation, is working on a new outer harbor and piers, and in Toronto a combination of Dominion and municipal interests is engaged in a $19,000,000 reclamation of harbor and piers. Along the Pacific Coast the prospective business from the Panama Canal has led nearly every seaport into a scramble for harbor superiority. San Diego, Los Angeles (with its port 20 miles from the city), San Francisco, Richmond (in San Francisco Bay), Portland, Seattle and Vancouver are all spending large sums in port improvement.

Dry Docks.—During 1913 the Gladstone Dock, the largest dry dock in the world, was completed at Liverpool, England, and two more of about equal size projected, one on the St. Lawrence at Levis, opposite Quebec, and one at Boston. The dimensions of the three follow, in feet:

Location	Length	Width	Depth
Levis	1,150	120	45
Boston	1,160	120	45
Liverpool	1,020	120	46

The Pearl Harbor Dry Dock, now under construction for the U. S. Navy, near Honolulu, H. I., was wrecked during construction on Feb. 17, 1913. The concrete foundation of the dock was being laid in a coffer-dam under water. When it reached a depth of 8 ft., one-half of its proposed final depth, the dam was pumped out, but the under-pressure was so great as to push up the whole concrete bottom and destroy most of the work done. Official and expert examinations have been made, but no report as to future construction has been officially announced.

Water Supply.—The new water supply for Los Angeles was dedicated in 1913, although it is not expected that the city can draw upon the supply until the summer of 1914, owing to delays in connecting the trunk lines in the city (see *Engineering News*, June 19, 1912). The Los Angeles aqueduct will bring mountain water from the Sierra Nevada Mountains, 260 miles away, across deserts and through mountains in sufficient quantity to supply a city of 2,000,000 inhabitants. It is a gravity system throughout, no pumping plant being required. It is designed to deliver 258,000,000 gal. net every 24 hours into reservoirs about 1,000 ft. above the city. The water-supply system consists of 98 miles of covered concrete conduits, 40 miles of uncovered conduits, 21 miles of open canal, 12 miles of inverted siphons, 43 miles of tunnel 10 to 13 ft. in diameter, four reservoirs each capable of containing three months' supply, and several miles of distribution mains. The water power will be utilized in its descent of several thousand feet, producing about 120,000 h.p., which will be used for the city's light and power, the excess being sold to liquidate the bonds and interest of the construction.

The new Catskill system for New York City is rapidly approaching completion and should be in service inside of another year. A mechanical filtration plant has been designed for this system and bids for its construction were opened in 1913, but the Board of Estimate and Apportionment, as a result of a campaign against the filters by various civic

associations which urged that filtration is unnecessary and that the contracts and plans are both faulty, voted on May 22 to rescind the authorization of the construction. This action was remarkable, first, because the same Board has successively voted to design and construct the filtration system, and, secondly, because until the summer of 1913 every engineer connected with the project has urged the necessity of filters and approved the designs accepted. (*Engineering News*, May 22, 1912.)

In 1913 Congress passed a bill authorizing the city of San Francisco to utilize the headwaters of the Tuolumne River in the Hetch Hetchy Valley, Yosemite National Park, as a storage reservoir for a new municipal water supply to supplement the present privately owned supply, which it is expected will be bought by the city. The new supply will be a gravity system of 400,000,000 gal. per day carried through 124 miles of aqueduct to the city. The bill was fought by the private water companies, by certain irrigation interests which claimed that their water supply would be damaged, and by various citizens, best classed under the generic term "nature lovers," who protested against this material utilization of national domain. The House of Representatives, however, passed the bill on Sept. 3, and the Senate on Dec. 6; it was signed by the President on Dec. 19. (See also X, *Public Lands.*)

Water Purification.—The purification of water supplies is being adopted by a rapidly growing number of American cities. It is estimated by the committee on water purification of the American Public Health Association that 13,290,000 people in the United States were supplied with filtered water in 1913. The corresponding figures for 1900 were 1,860,000 and for 1880, 30,000, while in 1870 there were no systems of water purification in operation. During the period 1904-13, the following cities of over 100,000 population were equipped with works for supplying filtered water: Philadelphia, Pa., Pittsburgh, Pa., Washington, D. C., Indianapolis, Ind., Providence, R. I., Cincinnati, O., New Orleans, La., Hackensack, etc., N. J., Louisville, Ky., Columbus, O., Toledo, O., Atlanta, Ga., Birmingham, Ala., Scranton, Pa., New York City (partial), Minneapolis, Minn., and Grand Rapids, Mich. During 1913 a number of cities in the United States have either placed contracts for or have been seriously considering filtration plants, the principal projects being those of New York City (see "Water Supply," *supra*), Hartford, Conn., Baltimore, Md., St. Louis, Mo., Trenton, N. J., Erie, Pa., Decatur, Ill., Dallas, Tex., Akron, O., Quincy, Ill., Evanston, Ill., and New Brunswick, N. J. In addition to these the question has been agitated at numerous other places, notably in Cleveland.

In this country there seems to be a trend away from the slow sand filter, which has been the most popular both in the United States and in Europe for public water purification, toward the mechanical filter plant. The latter requires the use of chemicals, which has led to an unwarranted opposition to its use particularly in medical circles, in spite of the fact that there has never been advanced any proof that the chemicals used are dangerous to health. The mechanical filter is superior to the slow sand filter because it requires a smaller area, is much freer from cleaning difficulties, and is applicable, without preliminary treatment, to turbid and colored waters. In this latter respect, the slow sand filter has been deficient; in some cities, notably Washington, it has been found necessary to resort to a chemical clarification treatment of the turbid water preliminary to sand filtration.

The hypochlorite of lime treatment of water as a preliminary and rapid sterilization method is still being successfully used in many cities. A new development is the use of liquid chlorine, chlorine being the active agent in the hypochlorite application. This liquid chlorine, made by liquefying chlorine gas, is bought in steel cylinders and applied to the water supply combined with a spray of water. It has the recommendation of simplicity and low cost. (See also XXVI, *Sanitary Chemistry.*)

Sewage Disposal.—Engineers continue to insist on a rational interpretation of the necessity of sewage puri-

fication as against the view advanced by some enthusiasts who urge complete purification of sewage before being placed in a water course. The engineering view, briefly stated, is that when dilution is sufficient (standards of sufficient dilution have been fixed), no further treatment is necessary and that freedom from nuisance and offense to nose and eyes is the ultimate standard for sewage disposal; the burden of health defense against sewage pollution is on water purification. No radical improvements in sewage purification or sewage construction have appeared during the year, nor any extraordinary project begun or completed.

Secretary of War Stimson, on Jan. 8, 1913, refused to allow the city of Chicago to increase the amount of water now drawn from Lake Michigan to carry its sewage through the Chicago Drainage Canal to the Mississippi, on the ground that this additional draft on the lake would reduce the levels of the Great Lakes sufficiently to hinder navigation. This decision, if upheld by the present Secretary, Congress and the courts, means that Chicago must proceed to the construction of one of the largest sewage disposal plants ever built. (See also XI, *Public Services.*)

Roads. — The general subject of highways is treated on another page of this volume (see XI, *Highways*). As an engineering problem there is probably nothing that is of more interest to the profession to-day than the construction of roads to meet the severe traffic conditions imposed by the automobile. The rapid wear due to the rapidly moving passenger car and the destruction of fabric by the heavy automobile truck have resulted in a very high maintenance cost. The problem has therefore shifted from how to build a good road cheaply to how to build one that will not capitalize for maintenance far in excess of original cost. At present the tendency seems to be toward hard roads, of cut stone, brick or concrete, instead of macadam roads of broken stone bound together by water or oil compounds and surfaced with other oil compounds. The latter type, although the accepted best type up to a few years ago, has been giving trouble in wearing. The art of road building is in a state of flux and no definite dicta can be laid down as to the best type of construction. The only certainty is that an efficient system of road patrol and maintenance is of equal value with much money expended in first cost.

Dams.—No record-breaking masonry dam was started or completed in 1913, but good progress was made on the Arrowrock and Kensico dams (*A. Y. B.*, 1912, p. 558.) In the former, as well as in the Elephant Butte dam, a U. S. Reclamation Service structure in Texas, a sand-cement is being used instead of the standard Portland cement (see "Cement," *infra*). In Cassia County, Idaho, there was completed during 1913 one of the highest earth-filled dams in the world, in connection with the Twin Falls-Oakley irrigation system. This dam is 145 ft. high, 1,025 ft. long and 750 ft. wide at the base. It was built by carrying earth from an adjacent borrow pit in belt conveyors and depositing it in layers 6 in. thick. This is probably the highest earth dam in the world. For purposes of comparison it may be noted that the famous Gatun Dam at Panama is an earth dike 105 ft. high, 7,800 ft. long and 2,600 ft. wide at the base. The Twin Falls dam contains about 1,000,000 cu. yd. of earth, while the Gatun Dam contains 21,000,000 cu. yd.

The Spaulding, Cal., dam, a concrete structure 305 ft. high, was nearly completed during the year. It is a part of the South Yuba Power Development.

The Keokuk dam across the Mississippi (*A. Y. B.*, 1911, p. 692) was completed during 1913 and the hydro-electric plant for which it furnishes water was formally opened on Aug. 26.

Cement and Concrete. — While cement concrete is centuries old, the comparatively recent application of steel to supply the tensile deficiency of the concrete has resulted in a remarkable growth in the use of both plain and reënforced concrete, so that no structural material is to-day receiving such attention from the engineering profession. During 1913 the Joint Committee on Concrete and Reenforced Concrete, a representative body from a number of technical so-

cieties, brought out its second report, a preliminary report having been presented in 1909. This latest report is in effect a codification of the present technical knowledge regarding concrete design and construction and, while marked by a certain timidity on disputed points, it is generally accepted as authoritative.

In cement, the latest developments have been the adoption of sand-cement by the U. S. Reclamation Service for two of its large dams and a continued interest in the "autoclave" test for consistency of volume. Sand-cement is made by grinding together to the fineness of Portland cement equal volumes of silica sand and Portland cement. Tests show it to be the equal in every way of Portland cement and it is, of course, quite a little cheaper, especially where sand is available, cement high in price, and the work of sufficient size to warrant the construction of a grinding plant, all of which conditions hold in western irrigation works. The "autoclave" test (*A. Y. B.*, 1912, p. 561) is still under fire, particularly by the greater part of the cement manufacturers. It is expected that an investigation as to its merits will be taken up soon by the committee in charge of the standard tests for cement.

ELECTRICAL ENGINEERING

T. Commerford Martin

Telegraphy.—In the older domain of wire service there is little to record. The relative stagnation of telegraphy is indicated by the report of the British Postmaster General to the effect that in the year 1912-13 the number of telegrams sent over the government wires decreased by 667,000, while the service showed a deficit of over $4,500,000. Previous deficits have been even heavier. Competition of the telephone and such systems as that of the "petit bleu" pneumatic tube letter in Paris, check telegraphic expansion, except in the cable, and that in turn suffers to some extent from wireless competition.

Wireless Telegraphy.—This field has been one of extraordinary development and interest during the year. The passengers and crew of the *Volturno*, burned in mid-Atlantic in October, were nearly all saved through the summoning by wireless of a dozen relief steamships, and in November a similar rescue was made from the burning *Balines*. (See also XXII, *Trade, Transportation and Communication.*)

During the four months following Dec. 13, 1912, when the new act to regulate wireless communication went into effect (*A. Y. B.*, 1912, p. 57), no fewer than 3,407 licenses were issued for stations and operators. The U. S. Navy and the Department of Agriculture have established a wireless system of storm warnings and general weather forecasts covering 48 hours. The Australian Government has taken over the Mawson wireless station at Macquarie Island, midway to the Antarctic region, as a permanent weather station, and the Argentine Government proposes to do as much with its meteorological bureau in the South Orkneys, a higher latitude than Macquarie Island. The expedition leaving New York for exploration of the Arctic continent carried wireless apparatus with a range of 2,000 miles, and the Governments of the United States and Russia have worked out plans for wireless across the Bering Sea, completing the world circuit. The Falkland Islands in the South Atlantic have established wireless communication with Montevideo, Uruguay, a distance of 1,240 miles, instead of depending on a monthly mail to England. France and the United States have been working during the year between Arlington and Eiffel Tower, Paris, to determine the difference of longitude (see XXIV, *Astronomy*). The Northern Railroad of France is distributing time by wireless to Amiens, Boulogne, Rouen, etc., from the Eiffel Tower, but the superintendent of telegraphs of the Atchison, Topeka & Santa Fé Railroad has reported against wireless train dispatching. The explosion of submarine mines has been carried to a distance of 15 miles by an Italian engineer, Uliyi. Wireless telephonic

communication is reported between Berlin and Vienna, a distance of 355 miles, and Professor Vanni of Rome, with a liquid microphone, has spoken with a military post in Tripoli, a distance of 600 miles, where his voice was immediately recognized; a phonograph was also used to deliver the voice into the transmitter. Experiments are being made to communicate thus with Paris from Rome, a distance of 730 miles. Two commissions in Europe are now studying wireless phenomena.

Telephony.—Telephony proper has undergone considerable extension during the year, the most marked feature in the United States being the close physical relation and interlocking of telegraphic and telephonic service. The Bell-Western Union system has been the subject of governmental inquiry, and the Wilson administration has been credited with the intention of taking over the whole telegraphic-telephonic plant now in private hands. The results of national ownership of telephones as shown in such cities as London and Paris appear most unsatisfactory. In Berlin a lawyer was fined $65 for slandering the post office because of his complaints, and in Paris a large number of the operators were detected as being in the pay of speculators, delaying messages and giving news. A submarine telephone cable is to be laid from Holland to England, a distance of 105 miles, at a joint cost of $3,000,000. One of the earliest forms of the telephone was the condenser type, which was abandoned, but it has been taken up successfully in Germany by Ort and Rieger, who claim much clearer speech with it.

Lighting.—Rapid advances have been made during the year in the incandescent lamp, bringing it for the first time in direct competition with the arc lamp for economy and efficiency. The tungsten metallic filament has driven the carbon filament to the wall, and the latter is now disappearing from manufacture, tungsten gaining from 0.10 per cent. of the total American output in 1907 to 39.94 per cent. in 1912, and carbon falling from 93.27 to 25.47 per cent. in the same period. The strength of the tungsten filaments has increased 300 per cent. since 1908. At the Edison convention in September at Cooperstown, N. Y., incandescent lamps with chemical "vacuum getters," such as nitrogen gas, were shown for the first time, having the record low consumption of 0.5 watt per candle. Some of these lamps have already been introduced in street-lighting circuits in Philadelphia, comparing favorably with arcs. In a Swiss city two streets of equal length were lighted with metallic-filament lamps, 500-c. p. lamps and with arc lamps of 10 amp. capacity, and the choice between them was left to 29 trolley-car motormen, of whom 25 were in favor of the incandescent lamps. Owing to the improvements in tungsten lamps and their lower cost, several American central-station companies which hitherto charged for them are now supplying them free to all customers. A great deal of street lighting in America is now being done with clustered tungsten lamps on low posts, especially in commercial districts, creating "white ways" for trade stimulation. Westminster Abbey, London, equipped temporarily with incandescent lamps for the coronations of Edward VII and George V, has now been given a fixed equipment of 50-watt metallic-filament lamps on 250-volt circuits.

For street lighting, however, the arc lamp in "flame" types of enriched carbons and mineral electrodes is holding its own, the most typical illustration being in Chicago, where the city has begun to install no fewer than 62,000, the work to extend over a period of three years. Several American cities have also adopted flame or luminous arcs for the streets, as at Baltimore, which has nearly 400 distributed over 2½ miles of streets in the business district; Pittsburgh, Pa., Rochester, N. Y., Utica, N. Y., and New Haven, Conn. (See also XI, *Public Services.*)

The year is also notable for improvements in arc searchlights, chiefly in Berlin, Germany. Vacuum tube vapor lamps have also been developed, particularly the neon tube, with pink light, of Claude, a French physicist, shown first in America in September. Another new type is the cadmium vapor lamp of Dr. Wolfke. It affords the red rays lacking in the

mercury-vapor lamp, and it is said that a 3,800-c. p. tube has been produced which consumes only 620 watts.

An interesting development of the year was the "cold light" of Professor Dussaud, of Paris, who with a system of mirrors and tungsten lamps fed intermittently in groups, dissipates the heat and intensifies the illumination. The physicist Branly stated before the Academy of Sciences that with 50 to 160 watts applied to 16 lamps of 25 to 80 candles, Dussaud has obtained 250 to 800 candles of cold light for several hours. The Dussaud lamps can also be "overvolted" two to four times above their normal rating, and their use is obvious in many places where great luminosity is needed with safety, as for example in the illumination of motion-picture films.

From the economic standpoint the most remarkable feature of the year has been the gathering together in groups, or under one management, of large numbers of central-station plants in the United States. Two plans are in vogue at the moment, one that of gathering together utilities scattered all over the country under one administration; the other that of uniting in a single system plants in a large but contiguous area. Both plans make for economy and efficiency in management. During 1913, some 800 properties out of about 5,000 were shown to be thus "syndicated," and out of 1,159 communities in cities of 5,000 population or more, 528 were receiving service from this kind of centralized management. The process of consolidation is active at the present moment. Its economic result in supplying large areas is shown by the Central Illinois Public Service Co., which in 1912 was serving 87 communities from 49 separate plants. Now there are only eight plants and there will be ultimately only four. In one area production costs of electrical energy were lowered from 7.08 to 2.8 cents per kw.-hr., consumption per capita increased from 40 to 85 kw.-hr., and the price to the public was reduced from 9.4 to 7.7 cents per kw.-hr.

Power Transmission.—The year was distinguished by many advances in this field, first among which should be placed the going into operation of the huge plant of the Mississippi River Power Co., built at a cost of $25,000,000, with an initial rating of 150,000 h. p. and an ultimate capacity of 240,000 h. p. The plant utilizes the full flow of the river at Keokuk, Iowa, and transmits power as far as St. Louis, a distance of 140 miles. At Long Lake, west of Spokane, the Washington Water Power Co. has installed a new plant with the largest spillway dam in the world, 200 ft. in total height, having a fall of 170 ft., and impounding a storage lake 23 miles long, averaging three-eighths of a mile in width. Each generator is connected to a waterwheel of 22,500 h. p., the largest ever built. These plants are typical of much new work in the United States, which has been held back only by the governmental restrictions hitherto placed on water-power development. The Reclamation Service has put in operation in Arizona, California, Colorado, and other western states, water-power plants aggregating 27,760 h. p., with a possible development of 400,000 h. p. The Pacific Gas & Electric Co. of California has under construction plants that will total for the system 225,000 h. p. when all are finished; a new double-tower transmission line is 118 miles long, at 115,000 volts pressure, stepping down to 60,000 for the existing distribution network. The highest voltage in practical operation during the year was 140,000, of the Au Sable Power Co. in Michigan; the highest proposed was 150,000, by the Pacific Light & Power Corporation. The longest service was that of the San Joaquin, Cal., Light & Power Co. from the Sierra Nevadas, 300 miles.

Much work has been done abroad. Units of 19,000 h. p. were put in operation to supply Rio de Janeiro from the River Lagos, 50 miles away. Construction has begun on a plant at Martigny, Canton Wallis, Switzerland, of 15,000 h. p., with a fall of 5,400 ft., the highest head in the world, only 30 cu. ft. of water per second being needed for the full capacity of the plant. The power of the famous Trolhättan Falls in Sweden is to be carried to Copenhagen, Denmark, a distance of 200 miles, and the engineers have decided

to use direct current for the purpose, chiefly on account of using a submarine cable 3½ miles long as one link in the system. In France the Rhone River is being utilized with a plant to transmit 24,000 kw. to Paris, a distance of 260 miles. The principal hydroelectric companies in France have combined with a total of 575,000 h. p., half of which is sold for light and half for electrochemical and metallurgical purposes. The Prussian Government is carrying out a plan to utilize the power of the Weser over an area around Cassel, 60 miles long and about 40 wide. Plans have been proposed for the further development of 150,000 h. p. at the St. Lawrence, and the Government of New Zealand is fostering plans for the immediate use of the hitherto neglected water powers of that colony. Permission has been asked of the Norwegian authorities to create a system on the Aura and Lilledal rivers, with a dam 140 ft. high, developing 200,000 h. p. The utilization of the water powers of Finland by a Belgian syndicate with a capital of $6,000,000 has been taken up.

Railways.—Extension of main-line electric railway work is going on rapidly, especially in the United States. The Long Island-Pennsylvania system has been put in operation along the north shore of Long Island for a distance of nearly 70 miles. The New York Central has widened its electric zone and put in commission new locomotives making 60 miles an hour. The New York, New Haven & Hartford section from Stamford to New Haven, 38.5 miles, is about completed, as well as that from Providence to Warren. The Great Northern has planned 530 miles of electrified track in the Montana and North Dakota region, and the Chicago, Milwaukee & Puget Sound, 440 miles in the same vast territory. The Denver, Rio Grande & Western is to electrify 114 miles in Utah. All this western work depends on hydroelectric current. The Norfolk & Western plans 73 miles in the coal regions of West Virginia. The Pennsylvania has made plans for 73 miles from Philadelphia to Paoli, and there has been serious discussion of the main section, New York to Pittsburgh, 400 miles. The New York main terminals are electrified, and also those of Detroit, Baltimore, and other cities, and others are proposed. In 1913 there were already 1,645 miles of electrified steam railroad in the United States. The Canadian Pacific is to drive a tunnel through the Rockies 16 miles long, to cost $14,000,000, which can of course be operated only electrically. Even the famous English Channel tunnel plan has been renewed because, aside from political objections, electricity makes it feasible. The Lötschberg Tunnel through the Alps was opened on June 20, with electric engines weighing 112 tons, the tunnel being 9.07 miles and the line 43.47 miles in length. The electrification of the Swedish state lines from Kiruna to Riksgransen is nearly completed and the Government plans also making over the trunk lines Stockholm-Malmo, Stockholm-Gothenburg, and Malmo-Gothenburg. The Swiss state roads have put in operation new three-phase electric locomotives capable of working up to 2,800 h. p. at full speed and making 18 to 45 miles on hour. The suburban railroad system of Paris is to be electrified in the western region, using direct current first from plants of 100,000 h. p., but later with energy from the Rhone and probably as well from the Lens coalfields in northern France, 100 miles away. After tests of the single-phase system, the administrations of Prussia, Bavaria, and Baden have decided to adopt it for extensive new work, as well as for 250 miles of double track in the suburbs of Berlin. Electric traction is also proposed for 100 miles from Leipzig to Magdeburg and 170 miles in Silesia.

The subway systems of New York and Paris have been under extensive development, and a franchise has been granted in Naples, Italy, for a subway five miles long and with 15 stations, largely underground. Another new project is that for Constantinople, where a company with $5,000,000 capital has begun work on several miles of subway and is to build a new bridge for trolley lines over the Golden Horn.

Storage-battery cars in the United States have made extraordinary ad-

vances during the year, and figures of October, 1913, showed 45 systems, with 280 cars. There are also several gas-electric cars in service, as around Minneapolis and on the Frisco lines, which now operate 14 such cars; and there are five cars on a 105-mile line between Joplin, Mo., and Denison, Tex.

Street-railway work in general has shown steady improvement, but no radical innovations. In the United States there has been a revival of the use of the side-entrance car and the central-entrance type is more in evidence. The prepayment system seems to be in increasing vogue. One-man cars have come into service on many trolley lines, especially for light traffic on large systems. There has been a further development in handling large bulks of freight and quantities of express material, due incidentally to the new parcel post.

Electric Automobiles.—The use of electric automobiles has gained enormously during the year, but chiefly in the United States, owing to the active interest of urban central-station companies in such work, and particularly for industrial purposes. The number of commercial vehicles rose from 2,500 in 1908 to 30,000 at the beginning of 1913. The pleasure car has, however, advanced *pari passu* in many cities. At the end of 1912, Denver, Col., had one electric pleasure vehicle for every 217 inhabitants, which is rivaled closely by other cities. During the year several long runs were made by electric vehicles with storage batteries, one between New York and Chicago. One central-station company earned $150,000 from vehicle charging. The use of electricity with gasoline automobiles has also gained wonderfully for lighting, starting, etc., and even for warming up the steering wheel. Electrically refined steel has also been in demand, and one English automobile manufacturer has installed a plant to make such castings of mild steel in his own factory. The authorities of Berlin have been experimenting hopefully with an electric cycle car for handling mail, and are using it. Such machines can transport 500 lbs. at 18 miles an hour, the battery having a working radius of 40 miles on one charge.

Miscellaneous Applications.—Miscellaneous uses of electricity become so numerous and varied each year that a volume could not record them. A few items may be mentioned as typical. The world's output of electrical steel rose from 47,689 tons in 1909 to 125,510 in 1911 and is still advancing. The largest electric mine hoist in the world has been installed in a South African mine. With motors requiring 7,000 h. p. during acceleration, the plant takes 9,000 h. p. of current from the Victoria Falls. A company has been organized at Vancouver, B. C., to operate the huge sawmills electrically and use the sawdust, now a waste product, for power generation. A number of the new French battleships have been equipped with an electric control for regular stoking of the boiler furnaces. Poplar, London, has had a favorable report from a committee of the Royal Sanitary Institute on its use of an electrolytic fluid from magnesium chloride for the sterilization of its municipal swimming baths. A perfumer in New Orleans has an electric fan sprayed for an atomizer to carry out into the street the odors of his specialties. An electrician at Rotterdam, Holland, has introduced a system of maturing cheese rapidly. Numerous advances have been made in electric heating and cooking apparatus, and London, England, now has restaurants where all food is electrically prepared and cooked. An electromagnet to use 250 h. p. is to be built in Paris at a cost of $40,000 for scientific research. Radio-activity continues a great field of new study, and practical uses outside medicine and surgery are growing, while sources of radium supply have extended. Silk is being deëlectrified in France by radium salts placed near each loom. X-ray moving pictures have been made successfully, and the ray is used for the inevitable detection of forgeries in checks and other documents. New salts and fertilizers are being produced in Sweden from electric furnace processes. At the Sanitary Congress in London the electrical milking of cows was reported on favorably as a means of avoiding the infection of milk with pathogenic bacteria.

MECHANICAL ENGINEERING

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Power Generation.—While no radical changes have taken place in the field of power generation in 1913, certain indications have appeared pointing to the probability of impending changes, and possibly indicating that we are on the eve of introduction of new types of boilers, steam turbines, and, very likely, machinery bridging the gap between the steam engine and gas engine of to-day.

The reciprocating steam engine is continuing to lose ground, in larger units to the steam turbine, and in smaller units to the small steam turbine and various kinds of gas and internal-combustion engines. On the other hand, the division of the field of power generation between the steam turbine and gas and oil engines appears as yet to be far from settled. In this country the formation of three large special companies for the building of Diesel engines promises a more universal introduction of this economical type of prime mover, so popular in Europe. It must be borne in mind, however, that cheapness of coal on one hand and the high initial cost of the Diesel engine on the other will probably for a long time to come militate against as wide an adoption of this engine as in Europe.

A considerable reaction is observed in the application of large gas engines, even where the gas can be had free as a by-product of another manufacture, as in blast-furnace or chemical works. It has been stated that, although thermodynamically more perfect than the steam engine, the gas engine in large sizes, say from 5,000 h. p. up, is far too slow running to be convenient for driving the modern high-speed apparatus, either electrical (generators) or mechanical (blowers).

The indications seem to point that in the near future new and important elements will appear in the field of power generation. On the one hand, the gas turbine may be considered an accomplished fact, even though it has not yet appeared on the market. The Holzwarth 1,000-h. p. unit has been built, tested, and runs. Just what its efficiency is, is as yet somewhat uncertain, but the fact that such a large unit works with any appreciable efficiency at all is of great importance in itself. On the other hand, in the field of steam-power generation, there have been of late also important developments, none of which, however, came to a head in 1913. Of these may be mentioned the Tesla turbine (*A. Y. B.*, 1911, p. 705) and the Ferranti steam gas turbine (see "Steam Engineering," *infra*), the latter promising to cut practically in two the steam consumption per unit of power generated. Of great importance also is the application to power generation of the Bone-Schnabel system of surface combustion (*A. Y. B.*, 1912, p. 706), with which thorough tests are now being made both in this country and in Europe, and which, it is expected, may give a new lease on life to all forms of steam engines, whether reciprocating or rotary. The gas-fired steam boiler is also a rather devious, but promising way of combining the advantages of a convenient form of power generation with the utilization of an otherwise wasted valuable by-product, especially important in view of the growing introduction in this country of coke ovens with the recovery of by-products.

Sun Power.—In the search for new sources of power, that great prime mover which may be considered the material source of life on earth, solar heat, has been attracting more and more attention both in this country and abroad. In an address before the Engineers' Society of Western Pennsylvania, James O. Handy has shown that a surface of only 10,000 sq. km. receives in a year, calculating a working day of only six hours, a quantity of heat corresponding to that produced by burning 3,500,000,000 tons of coal, or more than three times the annual production of coal. The first practical attempt to utilize this tremendous source of power has been made in Egypt, with a 100-h. p. pumping station driven by sun-heated boilers, but the plant itself was built

in Philadelphia, Pa. After three days' successful running, the specially designed zinc boilers, which gave perfect satisfaction in the United States, proved to be unable to withstand the fierce heat of the Egyptian sun, and were replaced by cast-iron boilers. With coal at a price of $2.50 per ton, the sun-power plant could compete with it; when coal costs more, the sun-power plant is already the natural prime mover. It is also of interest to note the rapidity with which steam can be gotten up: starting at 6 A. M., they had steam at 6.15, but starting at noon, with cold water, they had steam in three minutes, which is better than a regular coal-fired boiler could do.

Steam Turbines.—In general, in order to effect the more economical generation of power, large units have been designed. In the field of steam-electric engineering turbo-alternators of 25,000 kw. in one unit are now under construction, under the personal supervision of Sir Charles A. Parsons, for the Edison Commonwealth Co. of Chicago. This turbine is being built abroad. In the latter part of the year, however, the Interborough Co. of New York City has been able to order a 30,000-kw. turbine in this country, the American turbine having certain improvements over the previous European constructions. One of the features of this unit is its division into two turbine elements, the high-pressure element being a single-flow turbine operating at 1,500 r. p. m., and the low-pressure element being a double-flow turbine operating at 750 r. p. m. The machine is of the reaction type throughout, and comparatively low blade speeds are employed. While the scheme of employing two turbine elements having the steam passing serially through them has been frequently used in large turbines, it is new to employ high-pressure and low-pressure elements driving separate generators, each at a different synchronous speed. This permits a solution of some of the difficulties which have so far baffled the turbine designer, such as the necessity of dealing with comparatively minute volumes of steam at the high-pressure end, and enormous volumes at the low-pressure end; with the two portions running at different speeds, these volumes may be of course far more easily equalized. A still larger turbine, of about 35,000 kw., has been ordered, also from American manufacturers, by the Philadelphia Electric Co.

The only steam turbine proposed lately and working on a novel principle is the Ferranti turbine, which, as some believe, may form the stepping stone from the present day steam turbine to the pure gas turbine. To all intents and purposes, the Ferranti steam turbine is a gas turbine, only the gas is obtained not by explosion or combustion of a hydrocarbon, but by superheating steam beyond its critical point, and maintaining it at the temperature of superheat. The steam is superheated internally, and after it has done work in the first stage, it is resuperheated before it enters the second stage, and so on until the steam leaves the machine at the exhaust pipe. A 5,000 h. p. machine has been running for some time, and it has been found that when working with two-thirds of the total load, seven lb. of steam gave a shaft horse-power-hour, but it is estimated that much better results would be obtained at full load.

Hydraulic Engineering.—A similar condition exists in hydraulic engineering; although no essentially new types of motors have been installed, we have come to the point where, given a mass of water that may be conveyed from one level to another lower one, we can obtain power from it, no matter how large the body of water or how high its head may be. The Keokuk hydroelectric plant on the Mississippi River with its 300,000-h. p. output, and the Fully plant in Switzerland, using a head of over 5,400 ft., are sufficient evidence of this fact. In the Keokuk plant a difficult problem had to be solved. To develop economically 300,000 h. p. in a single plant on a comparatively low head, prime movers of special design are required, not only of unusually large size, but corresponding to the unusual conditions of operation. The best practice and knowledge of water turbines of the world have been drawn upon, and an efficiency of 86 per cent.

(Holyoke tests) obtained. Considering that the usual efficiency varies between 75 and 80 per cent., this is justly claimed as a world's record. The total generating equipment consists of 15 Francis-type turbines rated at a little over 10,000 h. p. each, with an overload rating of 13,000 h. p. The runner is 16 ft. 2 in. in outside diameter, and carries 20 blades, 6 ft. long by about 3 ft. wide. A single huge thrust bearing supports the entire weight of the revolving parts, some 550,000 lbs., with two steady bearings below to hold the revolving parts in position. It is interesting to note that notwithstanding the immense weight of the rotating parts, the workmanship is of such a high class that it is proposed to make an attempt to operate the thrust bearings without the high-pressure oil, using the rollers only. It may be mentioned in this connection, to illustrate the huge size of the modern prime movers, that the power required to overcome the friction at the thrust bearings of the new turbine at the Chicago Edison Commonwealth Co. is stated to be equal to 400 h. p., enough to provide light for a small city.

The problem that confronts the hydraulic engineer now is the safety of the plant after it has been erected. One of the great dangers is the water hammer. This has been several times experimentally investigated both in this country and in Europe (the last investigation by the French Turbine Commission), but it was only very lately that complete theories of the water hammer could be formulated by Allievi and de Sparre, fully establishing the propagation of the oscillation waves in the water column contained in the conduit and defining the way they are affected by different diameters of the conduit. The investigations of Yarnall, De Keyser, Bauersfeld, Kaplan, and others have helped at the same time toward a fuller understanding of the measuring of the flow of water, and the action of hydraulic turbines.

The Diesel Engine.—The most significant fact in the development of internal-combustion engineering in the past year has been the introduction of the Diesel engine for locomotive propulsion, and the continuation of its use for large ocean-going freighters. So far one cannot assert that the *thermo-locomotive*, as the locomotive propelled by Diesel engines is coming to be called in Germany, has been an unqualified success. The first thermal locomotive has been placed lately on the Berlin-Mansfield line, Germany. During the preliminary tests this locomotive developed speeds up to 100 km. (62 miles) per hour. No data as to fuel consumption and other particulars have been published as yet. From other sources (*Elektrische Kraftbetriebe und Bahnen*, Feb. 4, 1913) it appears, however, that there are very serious difficulties in the way of building an efficient Diesel locomotive with direct drive. A large torque has to be effected at the start at slow speed, and this calls for larger dimensions of the engine than would otherwise be necessary or for an auxiliary compressed-air equipment; an auxiliary engine for starting purposes, of about 250 h. p., is installed on the locomotive now under test. On the other hand, a Diesel-electric locomotive, that is, with a Diesel engine driving an electric generator, the latter supplying power to electric motors on the axles of the locomotive, has been lately tested on the Swedish State Railways (*Elektroteknisk Tidsskrift*, May 5, 1913) and given complete satisfaction. While apparently more complicated in design, its operation is made much easier owing to the intervention between the Diesel engine and the locomotive axle, both of which have fairly well fixed and not easily coördinable speeds of rotation of their own, of the perfectly flexible electric transmission, which plays here the same rôle as in turbine-propelled vessels of the U. S. *Jupiter* type. The Diesel locomotive is of great importance for this country. While it will hardly be able, at least in the near future, to displace the steam locomotive for general traffic, it has a field of application of its own in the suburban and city-limit haulage of trains, where sanitary considerations make the operation of steam locomotives objectionable, while low density of traffic and possibly other local conditions prevent the electrification of the lines, as is the case

in the Chicago terminal limits and in some sections of New York City.

That the Diesel engine generally is finding an ever-widening field of application is indirectly shown both by the fact that, as stated above, it is finally being built even in this country where the situation with respect to it is particularly unfavorable, as well as by the fact that the works of Bros. Sulzer, for many years known as steam-engine builders, have given up first the building of reciprocating engines and in 1913 also that of their steam turbine, thus confining the entire activity of the plant to Diesel engines and Diesel-engined machinery. Among the latter, particular attention in 1913 was paid to fire-engine pumps, where the compactness of the Diesel engine, its simplicity of operation, and rapid starting are of advantage. In the construction of large Diesel engines there was no appreciable progress during the year, and while it has been several times announced that Krupp, Sulzer, and others in Europe have built experimental engines of 1,600 and even 2,000 h. p. per cylinder, no such engines are as yet on the market, and no information is available as to the speed at which they will run, an important point because it determines what they will be able to drive direct.

The Gasoline Engine.—In the field of the gasoline engine, there was comparatively little progress achieved in 1913, partly because the gasoline engine, of both stationary and vehicle types, has already reached a fairly high state of perfection, and also because the high cost of gasoline has turned the attention of inventors toward seeking some cheaper way of generating power.

Two solutions are offered so far. One is to find new fuel that will be cheaper than gasoline, and do the same and possibly better work. In the United States the Standard Oil Co. announced the introduction of "motor spirit," a fuel somewhat cheaper than gasoline, expected to develop more power per gallon used but having the disadvantage of giving off an unpleasant smell. In Great Britain a Petrol Substitutes Joint Committee was formed and liberally subsidized by the Royal Automobile Club, the Automobile Association, and the Society of Motor Manufacturers, and an announcement has been made by its secretary, Stenson Cooke, that a process has been discovered whereby 40,000,000 gals. of a special motor spirit can be manufactured in Great Britain annually. In France successful attempts have been made to develop the naphthaline engine, where the main difficulty to overcome was the fact that naphthaline is a solid, and has to be melted and kept in that state before it can be injected into the engine cylinder. The engine has, therefore, to be started on gasoline and a special vaporizer is provided in which the naphthaline is melted and kept hot either by the action of exhaust gases or that of cooling water coming from the cylinder jacket. This necessarily makes the engine somewhat more complicated, but it is compensated by the low cost of naphthaline and the fact that it is perfectly safe to handle, as it is not explosive, little combustible when solid, and cannot be lost by leakage from a tank.

The Kerosene Engine. — The other solution to cheapen the cost of power generation is to adapt the gasoline engine itself, so that it could burn a cheaper fuel, for example, kerosene. Since an engine when cold apparently cannot start on kerosene, a number of double carbureters have been placed on the market, especially in Great Britain, which permit the engine to be started on gasoline and then switched on to the cheaper fuel. At the last Motor Boat Exhibition in Madison Square Garden in New York a Bridgeport engine running on kerosene was exhibited, built in this country. As a rule, serious trouble has been experienced when using kerosene as a fuel owing to carbon deposits in the cylinders, which may, however, be due to imperfect combustion of the lubricant; during the year it was announced that Prof. J. A. Moyer of the Pennsylvania State College is engaged in thorough tests of kerosene as fuel. The results of these tests have not yet been published.

In one of the American carbureters most recently placed on the market the problem of giving the air and kerosene mixture the right composi-

tion, so as to avoid the formation of carbon deposits, is solved in a novel and ingenious manner. The heat for assisting in the vaporization of the fuel is obtained from the atomized kerosene itself, as soon as the motor is started, and no previous heating is required. The kerosene is atomized when cold in the usual manner, by means of the suction of the motor, but the atomizer and air inlet are on the top of the carbureter, and immediately below them is a small compartment into which projects a spark plug operated by a coil and set of dry batteries entirely separate from the ignition system of the motor. As soon as the motor is turned over, the spark at the end of this plug is started, and ignites part of the mixture of kerosene and air in its path, transforming the mixture into an ideal combustible charge for the cylinders, in the form of a white cloud of vapor which does not easily condense. While this may not be the final solution of the problem of the kerosene motor, it shows that a mechanical arrangement by which a motor could start on kerosene is possible, and that we may in the near future see a kerosene-driven automobile, cheap in operation and at the same time at least as reliable and fool-proof as the present gasoline car.

Marine Gas Engines.—An important development in the field of the application of producer gas engines is the decision to place a fleet of 15 large steel barges equipped with gas producers and gas engines, to ply between New Orleans and the coal fields of northern Alabama, over a total distance of approximately 500 miles. The screws of the barges are to be driven at 300 r. p. m. by two vertical gas engines of 75 h. p., the gas being furnished by a 150 h. p. gas producer using waste coke from the ovens of the Birmingham district. An auxiliary 9-h. p. gasoline engine is provided to drive the ballast and bilge-water pump, blowers, and electric machinery for lighting and minor power purposes.

Steam Engines. — The locomobile has long been considered one of the most economical forms of steam engine, and both in this country and abroad continuous efforts have been made to develop it to its highest efficiency. In Europe the Lanz superheated steam locomobile has lately shown an actual steam consumption of 11.4 lbs. per effective horse power, but a still higher type of locomobile has been recently developed in this country. It is of the tandem compound type, with double superheater, both cylinders jacketed by the uptake flue gases, and is built in five sizes, from 150 to 800 h. p. Besides an unusually low steam consumption (the tests of the first engine built have shown a consumption of 9.2 lbs. per i. h. p.), it possesses several mechanical improvements over the corresponding German types, such as an arrangement by which all engine stresses are removed from the boiler shell. A feature characteristic of this locomobile, likely to become standard in this class of machinery, is that in both cylinders, with a low initial superheat, a high efficiency is attained with a total absence of cylinder condensation. Tests made by Professor Doerfel of Prague with a Wolf uniflow type locomobile have shown an efficiency lower than that of the compound tandem double superheater machine.

The phenomena of condensation have attracted considerable attention of steam engineers during the year in their effort to avoid all preventable losses and, by enhancing the economy of the steam plant, equip it better for its struggle for existence against the new forms of power generation. At the end of 1912 were published the data of the investigations of George A. Orrock on air in surface condensation, while a certain impetus to a further consideration of this problem has been given by the publication in the *Journal of the American Society of Naval Engineers* (February, 1913) of an article on the theory of surface condensation by D. B. Morrison.

Steam Locomotives.—In the field of steam-locomotive construction the demand for increased power and economy of operation has been met by the Philadelphia & Reading Railroad with the largest Mikado type locomotive ever built, both as regards total weight and weight on drivers. This engine weighs 331,000 lbs., of which

249,000 lbs. are on the drivers. It has an unusually large firebox of the Wooten type, arranged for burning a mixture of anthracite and bituminous coal. The actual road experience has shown that the locomotive is very well adapted for fast heavy road service as well as for slow heavy-grade work. The distinctive features of this type, apart from its size, are the exceptional frame bracing and the absence of superheat, instead of which an extra large amount of evaporative heating surface has been provided, the same fuel economy being obtained by this means without the complications incident to the use of the superheater. Thus far the smokebox temperatures in operation seem to be comparatively low, and the amount of coal burned for the work done is relatively smaller than is required in other types of locomotives on the same road.

It may be noted generally that for the heavy work of American railroads more and more powerful locomotives are required. The Lake Shore & Michigan Southern Railroad, which up to 1912 had been handling its freight traffic by means of consolidation-type locomotives, has been forced lately to adopt for its new orders the far more powerful Mikado type. This is a peculiarly American condition common to all the roads which have been up to the last year or two equipped with the older types; and the Lake Shore & Michigan Southern has been but going through the same process of evolution as, for example, the Norfolk & Western, which has substituted heavy Mallets for the lighter 4-8-0 type locomotives, and the Grand Trunk Railway, which replaced by Mikados the Richmond compound consolidation-type locomotives. This latter case is interesting in showing the rapid advance of locomotive engineering in this country; with an increase in weight of 30 per cent. over the older type, an increase in power of about 52 per cent. has been attained.

While it has always been realized that the heating surface in the firebox of a locomotive (these data have also an important bearing on stationary boilers) is much more valuable in producing evaporation than that of the flues, the exact relation could only be conjectured. Thorough tests made in 1912 under the supervision of Prof. W. F. M. Goss, the results of which were published in 1913, have fully established the process of circulation of water in the locomotive type of boiler, and, contrary to previous assumptions, have proved that there is no evidence to show that the water in the bottom of the boiler is pushing backward, and in the upper part forward, but that, more likely, enough water passes back from the barrel to the water legs of the boiler to make good that which the firebox evaporates and no more.

The great problem of finding, if not a better, at least a cheaper and still equally satisfactory fuel for railroad locomotives, has been seriously considered during the year, both on account of the general intensification of the search for higher standards of efficiency and because of the rise of the price of some grades of fuel. The use of oil has so many advantages that it will usually displace solid fuel whenever the cost of oil permits such a substitution, as has lately been the case, for example, in the Wyoming region since the development of oil-fields in that state. Wherever coal is used, however, efforts are being made to use lower grades, and, when possible, true lignites, of which thousands of billions of tons appear to be available in this country. The problem of burning the low-grade coals has been one that has so far baffled all attempts at solution. Because of their generally lower heating value, the grate area must be greater; the high drafts required to maintain combustion must be obtained by exhaust pressures which reduce the efficiency of the locomotive by 5 to 10 per cent.; and considerable trouble has been caused by sparks scattered by the powerful draft. While these problems have not yet been definitely solved, a good deal of work has been done; during the year tests made by different railroads using lower-grade fuels have been analyzed and some devices for the control of the spark nuisance successfully worked out. There is, however, a possibility of a development of great importance in another direction. At different times different roads both in this country

and abroad have made efforts to burn pulverized coal, but failed on account of the inability of the firebrick to withstand the intense heat generated, and the difficulty of properly pulverizing and storing the coal in a locomotive tender. During the year an American railroad has again taken up this subject in a very thorough manner, and the publication of results may be expected before long.

Automobile Engineering.—In the field of automobile engineering the point has been evidently reached at which there must be either a radical reconstruction of the driving plant or only such minor improvements in design as affect the working of the engine gradually, without marking milestones in its development. It is a significant fact that the new models of some of the progressive makes, as far as the driving plant is concerned, and in some cases even the entire construction, differ in practically nothing from those of 1912.

One of the heaviest expenses in the upkeep of an automobile is that of rubber tires. The invention of a substitute for the entire rubber tire, it appears, has been done successfully. While comparatively little precise data are available as to the air springs invented by George Westinghouse, the fact that a company to manufacture them is not only in existence, but has lately increased its capital to $2,000,000, points to serious work being done along these lines. (See also *Automobiles, infra.*)

Aeronautical Engineering.—Curiously enough, the prospects of aeronautical engineering are at present less clear than they were a year ago. What is certain is that a heavier-than-air machine can fly for very long distances and at speeds which cannot be attained by any other means of locomotion known to us. It is also known that in the hands of an exceptionally experienced person an aeroplane admits of what might be otherwise considered very unusual handling. On the other hand, the always lengthening list of fatalities, especially in the ranks of military aviators, has created an impression that, as constructed at present, an aeroplane is an inherently unstable and therefore dangerous machine, and that practically no development of aviation, beyond the present stage, is possible without radically changing the construction of the apparatus.

To insure safety of flight, three means are available. The first is to modify the conditions of flight in such a manner as to eliminate the landing on hard ground, either voluntary by otherwise. This is the path mainly followed by the American designers in their hydro-aeroplanes, and the very few accidents which had occurred to users of such machines would justify the assumption that in its own field this solution is a correct one. It is not, however, by any means a general solution, since in flying over ground a hydro-aeroplane is at least as dangerous as an ordinary aeroplane. The second solution is that of mechanical stabilizers, Several of them have been announced during the last year, but none appears to have insured such a reasonable degree of stability that a trained man not gifted by an exceptional sense of equilibration would be entirely safe in going up in a machine provided with the stabilizer. The third solution, that of giving to the planes such a shape as to make them self-compensating for all the actions tending to destroy equilibrium, would be, if possible, the ideal one, since it would at once permit an increase in the size of the aeroplanes constructed, as well as eliminate the necessity of complicating the working of the machine by the presence of an expensive stabilizing device. A. See, a well-known experimenter in dynamics of air, has proposed the combination of two planes, a main supporting and an auxiliary plane, the latter free to rotate about its transverse axis and of such a shape that the pressure of the air against it increases when the incidence decreases. When the apparatus is in equilibrium, the pressures of the two planes have a resultant passing through the center of gravity; if the apparatus dips forward, the angle of incidence of the two planes is decreased, the pressure on the main plane decreases, but that on the auxiliary plane increases, and a couple is produced which tends to relieve the bow of the apparatus and to restore the original position. The

same happens when the apparatus dips aft. No apparatus of working size has as yet been constructed on this principle, but a model of reduced dimensions has fully confirmed the theoretical expectations. Another plan has been proposed by two well-known French aeroplane designers, Gastambide and Le Vasseur, an aeroplane with variable surface which, in addition to its usual performances, can fly on all descending trajectories as a parachute.

The investigations of the aerodynamic laboratories with respect to such questions as air resistance, actual air velocities in the atmosphere, air pressure on supporting planes, air holes, etc., are of the greatest importance for the future development of the art of aerial navigation. In 1913 the Italian Government created a special laboratory for aerodynamic researches, and the establishment of a national aerodynamic laboratory by the Federal Government is under consideration in this country. That laboratory data are of great importance for the aeroplane designer is shown by the experience of Drzewiezki, who has designed what appears to be one of the most promising self-balancing machines entirely from data obtained in an aeronautical laboratory. The apparatus has two pairs of planes arranged in tandem and selected in such a manner that the load-carrying capacity of one of the planes increases and decreases with incidence more rapidly than does that of the other pair of planes, thus producing a couple counteracting any tendency toward perturbations of equilibrium.

Some work, though perhaps less than the problem really deserves, is being done in experimenting with heavier-than-air machines other than aeroplanes, especially with helicopters. While none of these machines has as yet flown any distance, the latest types of helicopters, such as the Breguet machine, entitle one to think that ere long this type will also be carried to practical success. The so-called avions, flying machines driven by human power, a sort of jumping bicycle, have not been heard of in 1913.

Air Machinery.—Much valuable and important work has been done in connection with fans and compressed-air machinery in the past two years and especially in 1913. Results of important tests of fans have been published, by Charles H. Treat, on the measurement of air in fan work, in this country, and by Kloss in Germany. The latter tests have shown among other things that the usual way of characterizing a ventilating system by what is known as an equivalent opening, that is, an opening in a thin plate which offers to the air the same resistance as the entire ventilating system in operation, is unsatisfactory, and that a better result could be obtained by using a special resistance coefficient, constant for a given ventilating system. An important step toward a better understanding of the operation of compressed-air tools has been made through the publication by Harm and Groedel of methods for taking time-path and pressure-volume diagrams of the operation of compressed-air machinery. Notwithstanding the comparatively high state to which design and construction have been developed, the compressed-air tool remains still a great waster of power. Recent tests by Groedel have shown that in order to develop 1.1 h. p. at the hammer, an input of nearly 8 h. p. is required at the machine end.

While no new types of blowers have appeared during the year in this country, in Germany Eisermann and Lehne have patented an ingenious blower of the blade-wheel type. The blade wheel is arranged in a freely revolvable drum mounted eccentrically with regard to the blade wheel. This drum or casting is watertight and contains a liquid which, when the drum begins to rotate, is thrown out by centrifugal force against its internal periphery and acts as a liquid seal. The wheel blades, shaft, and liquid seal form a series of unequal (owing to the excentricity of the wheel) compartments gradually decreasing in the direction of the rotation of the wheel, and thus producing a compression of the gas in the compartments. It is stated that with a blower having a star wheel 3¼ in. in internal diameter, and 2¼ in. in width, a gauge pressure of about 20 lbs. per sq. in. has been obtained with the delivery pipe com-

pletely closed, and the wheel revolving at 3,600 r. p. m.

Another important development in the field of air machinery is the Gaede vacuum pump. While investigating the flow of gases through tubes, Professor Gaede found that, contrary to previous assumptions, when the gas pressures were above 0.001 mm., a gas film formed on the walls of the tubes, and the molecules were reflected preferentially normal to the wall irregularities which they hit, that is, back to the direction from which they came. On this principle was based the construction of a new pump lately placed on the market, and permitting degrees of vacuum outside of the reach of the mercury vacuum pump.

Testing Materials.—As a result of the International Congress for Testing of Materials in the latter part of 1912, there has been somewhat of a dearth of important publications in this field during the year. Nevertheless, an important approach to testing entire structures or at least models of them without destruction has been made from several directions. The data of tests of the Larkin warehouse in Chicago have fully established that the measurement of actual stresses in a building under a small overload placed in the manner most severely taxing the construction are not only of great value for the purpose of general design of structures for which there is not a generally accepted mathematical theory, but that they are also sufficiently precise to justify calculations on points of more purely scientific interest.

A different path of research has been followed in Europe, where use has been made of the fact that glass and other transparent bodies act differently toward polarized light when under the action of internal stresses than when free from them. If a sheet of glass is subjected to strains situated in its plane, and if at each of its points is projected, normal to its plane, a ray of polarized light, the glass transmits two vibrations parallel to the principal stresses in the glass, thus permitting the determination of their direction, while the difference of the course of the two vibrations makes it possible to determine the difference between the two principal stresses. On the basis of these observations, and by using models made of pieces of annealed glass carefully glued together, Professor Mesnager has succeeded in constructing a model of a long-span bridge which when tested for stresses under load, has been used to determine the points of maximum stress, the most unfavorable combinations of loads, and the magnitude of maximum stress, tensile and compressive. Similar experiments with models made of celluloid compounds have been made in this country (*The Engineering Record*, Jan. 11, 1913). (See also *Physical Properties of Metals and Alloys, infra.*)

Heating and Refrigeration.—In the field of heating the most important development is the growing persuasion that we must be able to cool down the air in the summer as well as heat it in the winter. This problem is of especial importance in tropical countries, but even in the more temperate climate of this country there are many places, as in hospitals, where excessive heat is either objectionable or even dangerous. Hitherto artificial refrigeration of air in living and working rooms of residences and commercial buildings has appeared to be entirely out of question because of the high cost of the machinery required. The first serious attempts at artificial refrigeration of buildings were made in this country, which may point to such excellent examples as the Senate Chamber and the New York Stock Exchange. Both of these cases, however, represent examples of large installations of an uncommercial character. Two new developments took place during the year which promise that in the near future artificial cold in the summer may be brought within the reach of all. One is a new system of house construction for tropical countries, on which the houses are constructed of hollow tile with a suction fan driving air through the walls, thus producing practically an efficient heat insulator preventing the heat from outside from affecting the temperature within. Another development is the use of the refrigerating machine as part of the heating system. More than half a century ago Lord Kelvin proved that

with a refrigerating machine as part of the heating system, an apparently impossible efficiency of more than 100 per cent. could be obtained from coal, more heat units being delivered to the heating system than were initially present in the coal. The losses in the refrigerating machine, however, were such as to preclude the possibility of attaining this theoretically possible result in actual practice, and it was not until 1913 that a machine called the resorption machine, a modification of the absorption machine, has been constructed which permits not only the attainment of the high theoretical efficiency in the utilization of coal established by Kelvin, but also the production of cold in the form of cold air or ice as a by-product, thus making refrigeration possible, at least in large buildings, at prices which will probably permit its introduction in the near future in commercial plants. In many plants, among them textile mills and even in steel mills, the problem of proper air conditioning is becoming more and more important. Processes for maintaining a proper amount of humidity and heat minimum may be considered as more or less fully established. On the other hand, the problem of keeping the heat down to a certain maximum temperature is as yet fully open, and it is from the developments described above that its solution may be expected.

Cryogeny.—Cryogeny is a comparatively new word and denotes a very modern development in the refrigeration engineering dealing with very low temperatures. Less than five years ago such products as liquid air and liquid gases, oxygen, nitrogen, carbon monoxide, etc., were known only as curious laboratory products; they have now become part of an already large and rapidly growing business. This rapid development has been largely due to the fact that cryogeny started in the laboratory and practically remained in the hands of the men of science, even after it passed to the stage of commercial development. As a result, the processes used are in the highest conformity with the known laws of thermodynamics, all possible losses are fully investigated and eliminated, and the total efficiency is such that in some cases the manufactured product costs less (not considering the depreciation of the plant) than the raw product from which the manufacture started. Wherever possible the counter-current principle is applied, which consists in passing the incoming air or gases through the outgoing cold ones, and thus lowering the temperature of the former at practically no cost, often to a fairly low level.

During the year considerable progress was made in the liquefaction of air and the production by the application of low temperatures of hydrogen from water gas, the first by Claude and Linde, the second by Linde. The liquid air is used for the production of pure oxygen by evaporating the nitrogen and separating out the oxygen, which has a lower point of evaporation, in the form of a liquid. The oxygen is then used for autogenous welding and cutting of metals, manufacture of special explosives, etc. (See also *International Congress of Refrigeration, infra.*)

Safety Engineering. — Every year approximately 40,000 workers are killed in the United States, and 2,000,000 are injured, while 3,000,000 are ill from occupational diseases and preventable causes. A conservative estimate of the wasted wage-earning capacity of the latter for one year is $400,000,000. A systematic effort has been lately started to reduce this waste of human life to an unavoidable minimum. Several great corporations have installed improved machinery with dangerous parts protected, while generally a far greater attention than before is paid both to the instruction of the workers in the methods of protecting themselves and to such an organization of the shops as will tend to eliminate unnecessary risks. The first International Exposition of Safety and Sanitation held in America, in New York City, Dec. 11-20, 1913, has shown the progress of safety and preventive methods introduced in this country in all branches of industrial life.

Fire Prevention. — An important branch of safety engineering is the protection of property from fire loss. While in general the fire loss in the

United States is still scandalously large, great progress has been made wherever a systematic effort in the direction of prevention has taken place. According to Herbert M. Wilson of the U. S. Bureau of Mines, 15 years ago one-third of the total fire loss in New England was on factory buildings. In the last 15 years only eight fires exceeding $100,000 loss have occurred on one and one-half billion dollars of insured property. To-day fireproof factory construction is as cheap as 10 to 15 cents per cubic foot, while inflammable residence construction rarely costs less than 20 cents. While the methods of fire prevention have been materially advanced, comparatively little has been done in the improvement of methods of fire fighting. It was but natural that extreme caution should be exercised in adopting motor apparatus, and the large cities especially, New York, Chicago, Boston, and Philadelphia, have been much slower to adopt the motor chemical and hose car and the motor fire engine than were smaller cities and villages. Lately, however, their attitude has changed completely, and now they are taking the lead in substituting motor apparatus for horse-drawn equipment. During the last 18 months the number of pieces of motor apparatus has increased from 600 to 2,000. In New York City more than a score of new fire houses have been designed with a view to housing motors instead of horses, and it is expected that within the next five years more than $50,000,000 will be put into motor-driven fire apparatus.

INTERNATIONAL CONGRESS OF REFRIGERATION

J. F. Nickerson

The third International Congress of Refrigeration was held in Washington and Chicago, Sept. 15-24, 1913, under the auspices of the International Association of Refrigeration. An invitation by the President of the United States was accepted by the second Congress in Vienna in 1910, and preparations for the third Congress were immediately begun by a special organization under the direction of the American Association of Refrigeration. Forty-four countries were invited by the Department of State to be represented in the Congress by official delegates.

The work of the Congress was divided into six sections, each with its own officers and committees. Section I took up the study of liquefiable gases and units, with sub-sections on physics and chemistry, on biology and on units in refrigeration. Section II discussed topics concerning the design, construction, operation, and methods of testing refrigerating machinery and insulating materials, including the various methods of applying refrigeration. Section III considered the application of refrigeration to foods for the purpose of conserving and preserving them, including the application of refrigeration for carrying seeds and plants for future reproduction. Section IV considered the use of refrigerating apparatus in the industrial arts, including the use of refrigeration for domestic purposes, and the application of refrigeration in medicine and surgery. Section V considered subjects connected with the use of refrigeration in railway and steamship transportation, including methods of conserving foods for transportation by precooling before shipment, and the use of refrigerated barges or trucks in conveying perishable goods to and from transportation stations. Section VI considered questions relating to legislation and administration, including also the liability of warehousemen for loss or damage to goods stored, insurance of goods stored under refrigeration, instruction in refrigeration given in educational institutions, and the present status of the refrigerating industry in various countries of Europe and America.

An important part of the discussion was concerned with the cost of ice making with various types of power plant and methods of making clear ice from distilled water and from raw water. Statistics were given concerning the meat supply of the world, particularly the cattle and sheep supply of Australasia and Argentina, and also concerning the fish industry, especially the preservation of fresh fish in frozen condition. Data were presented on the loss of perishable foods

during transportation by imperfect methods of handling, and on the saving effected by the proper handling and refrigerating, both before and during transportation, of the principal food products shipped and handled under refrigeration, particularly poultry, eggs, and fruits. The Congress also reviewed at length the present condition of instruction in the science and application of refrigeration and the extent of the refrigerating industry in the principal countries of Europe and in the United States.

Resolutions were adopted recommending further investigation of the basic units upon which the science of mechanical refrigeration is based, and affirming that the findings of the U. S. Bureau of Standards as to the latent heat of fusion of ice now permitted the fixing of its value at 143.5 B. t. u. Other resolutions concerned the support of the excellent investigations being made at the Cryogenic Laboratory at Leyden under the direction of H. Kamerlingh-Onnes, the proposal for universal adoption of the metric system and the proposed system of unifying measures of capacity of refrigerating machinery. The Congress adopted resolutions favoring the increase of the present means of cold storage and of facilities for transportation under refrigeration in all countries and recommending further study of this subject; it was recommended further that measures be taken to establish in all countries centers for technical and practical instruction in refrigeration, and to provide for the dissemination of information concerning cold storage, especially to legislative bodies, in order to secure more reasonable and more uniform regulations for the cold-storage business. Another resolution adopted favored the securing of adequate insurance against indirect or consequential damages from causes other than fire to goods preserved in cold-storage warehouses.

The subjects brought most prominently before the Congress were the need for more accurate and reliable data concerning fundamental refrigerating units than are at present available; improved methods of handling perishable food stuffs; recent extensions in the field of the application of refrigeration; the significance of the results obtainable in the production of extremely low temperatures, as by the liquefaction of air and conservation of the gases composing the air; and in the liquefaction and solidification of hydrogen, helium, and other gases; and the opportunities for further improvement in and extension of the field for mechanical refrigeration. (See also *Mechanical Engineering, supra.*)

AUTOMOBILES

HENRY SOUTHER

The Automobile Industry.—The automobile industry has continued to grow at an increasing rate. On July 31, 1913, the number of pleasure cars in use in the United States, as determined by registration, totaled 1,100,000. The output of pleasure cars for 1913 was approximately 325,000. The prices varied from about $500 up to $6,000, with an average of $975. It is interesting to note, in connection with this average figure, that the maximum average was reached in 1907, approximately $2,140, and that in 1900 the average figure was about $1,550. It must be remembered also that the pleasure car accessory equipment of to-day, with starter, lights, top, wind-shield, etc., is far more expensive than ever before, costing some $200 to $300.

The manufacture of trucks is taking on a similarly rapid rate of growth. Hitherto the output of each year has equaled that of all the foregoing years put together. The total truck output for 1913 was about 51,500, against an output in 1912 of 25,000. Of these trucks, 48,800 are propelled by gasoline engines and 2,700 by electric storage batteries. The average cost of gasoline-driven trucks in 1913 was about $1,875, and of electric storage-battery trucks about $2,400. The price of the gas trucks varied from about $800 to $5,500 and the capacity from 1,000 lbs. to 20,000 lbs. The price of the electric trucks

varied from $1,900 to about $5,700, and the capacity from 1,000 lbs. to 14,000 lbs.

Commercial Vehicles. — The truck industry is not upon as sound commercial footing as it should be. The manufacturer has not known, from lack of experience, just the right kind of truck to build as to capacity and body form. The user has been, in many cases, ill-advised as to the kind of truck needed for his particular work. For highest economy, trucks must be loaded rapidly. This means that the load should be handled in as few units as possible. These units should be so packed together in trays, boxes, or otherwise that they may be quickly lifted by a hoist into place on a truck. Large dumping bodies have shown a great saving in the building of roads and in the handling of any material that may be dumped. Truck bodies that are quickly removable are being evolved; while one body is traveling with the load, another can be loaded and ready as soon as the truck returns. The modification of freight-depot loading platforms is under consideration.

The lack of intelligent operators of trucks is an important factor. Bad driving, fast driving, and resulting high cost of upkeep create a serious handicap. The abuse of the electric truck is less liable to occur, as its speed is limited. The maintenance of the electric truck, however, is of the highest importance. If the batteries are neglected, new ones must be frequently purchased at a very high cost.

Fuels.—The question of fuel for gasoline-propelled vehicles is becoming very serious. The price has rapidly risen from 10 cents and 11 cents per gallon wholesale to approximately 16 cents per gallon. Simultaneously the quality has changed, and in place of being about 70 deg. Baumé, is now about 60.

With a continued rise threatened, every effort is being made to evolve or discover suitable substitutes. Although alcohol is now out of the question because of its cost, about 40 cents per gallon denatured, it is bound to be the ultimate fuel, for the reason that the supply of the material from which it may be made is inexhaustible.

The large oil producers are putting out a fuel known as "motor spirit" or "engine naphtha," which is about four cents cheaper per gallon than ordinary gasoline and makes an engine less easy to start and less flexible when running. Other coal-tar products in the shape of coal-tar naphtha and benzol are being used and are suitable fuels, but the possible supply is relatively small, not even 10 per cent. of the present consumption. The price prevails at about five cents above the cost of gasoline. The fuel as furnished is of various mixtures, for example, 40 per cent benzol, 40 per cent. coal-tar naphtha, and 20 per cent. ordinary gasoline. This fuel is a good one for gasoline motors; it gives more flexibility, easier starting and somewhat greater economy. Kerosene is being used to a limited extent, but suffers the disadvantage of requiring a small quantity of gasoline, in a separator container, with which to start and warm the engine. At the present moment, this scheme is possible but not popular, even with kerosene at four and five cents per gallon.

Several prizes have been offered for the discovery of a new fuel. In England, the Society of Motor Manufacturers and Traders announced a prize of 2,000 guineas, the competition being open until Sept. 30, 1913. In France the Chambre Syndicate de l'Industrie du Pétrole, of Paris, will offer two prizes of $1,000 and $500 to discover the best means of using kerosene without the necessity for using gasoline for starting purposes. An American entrant for the British prize proposes to use a small gas producer. The whole apparatus is not to occupy more space than now occupied by the gasoline tank. So far no awards have been made. (See also *Mechanical Engineering, supra.*)

Standards. — The highest influence in decreasing the cost of producing motor vehicles is the general adoption of standard parts. The producer now appreciates that any part made in large numbers, without any variation from similar parts, may be purchased very cheaply as compared with a special part, differing ever so little from a standard. The result is a fine car at relatively low cost. Stand-

ards now exist in steels, alloys, steel tubing, wheels, tires, bearings, brake connections, carbureter connections, certain spring parts, electric lamps, magneto bases and couplings, screws and lock washers. The list is increasing as the result of constant effort on the part of the Standards Committee of the Society of Automobile Engineers.

Design.—There is a marked tendency toward the production of a lighter car. This means economy of operation and upkeep, the contributing factors being a smaller and more economical engine, using less fuel per mile and a lower expenditure of tires and tire upkeep per mile. The intelligent selection of steels will permit a reduction of weight without danger.

The Knight internal sliding-sleeve type of non-poppet valve motor is making slow headway. Rotary, oscillating, and slide-valve engines otherwise have not reached the commercial stage of development. Although in more or less successful use, they have not yet passed the test of public usage.

The Electric Starters. — After two years of use, electricity supplies the most popular motor starting device; even under a handicap of 200 lbs. increase in weight, the electric starter is a success. All cars must be equipped with electric lights to sell. It is an easy step to use the electricity to operate a small electric motor to revolve the gas motor until it takes up its functions. As soon as this occurs, the electric motor becomes a generator and recharges the partially exhausted storage battery. All this is automatic and no added care to the operator of the car. Some systems use both electric generator and motor in separate units.

Wheels and Tires.—The quickly detachable rims and demountable rims have helped overcome tire troubles. The great advance of the year, in this respect, is found in the detachable wire wheel. It is the greatest convenience in tire changing, wheel and tire being removed at once, and is light, strong, cool, resilient, and a big tire saver.

The price of rubber is now decreasing. In 1908 the low mark was reached at 75 cents per pound for the best rubber; in 1910 the high record was made at $3.10 per pound; since then the prices have been $1.25 in 1911 and 1912, 90 cents in 1913. Cultivated rubber is now a strong factor. Its quality is high and production uniform and increasing. It would seem that tire prices should not be any higher from now on. The demand and consumption, however, are enormous. There are 1,100,000 cars now in use. One hundred dollars per car per year for tire upkeep is a modest estimate. This means one hundred million dollars annual outlay for tire upkeep, three times the amount spent by all railroads in the United States for rail replacement.

AERONAUTICS

PAUL BROCKETT

General Survey of Progress. — The beginning of the year 1913 may be said to mark the end of the sensational in aeronautics and its final entry into the serious consideration of the world at large. Aeronautical laboratories have been established in Russia, Germany, France, and England, while in America the Langley Aerodynamical Laboratory was reopened in May with a committee of scientific experts the equal of that of any similar institution in the world; great results are expected from the coöperation of these institutions. Langley and Lilienthal by their whirling table experiments in aerodynamics gave an epochal impetus to scientific aviation which, on the advent of suitable motors, resulted in practical flying with numerous types of aeroplanes. Their methods of research have been powerfully supplemented by the wind-tunnel methods introduced by Marey, Zahm, and Riabouchinski, which of late have been developed and employed effectively by Prandtl, Eiffel, and the National Physical Laboratory of England. These and kindred improvements have established aerodynamics as a permanent branch of aeronautical engineering.

Another step in advance is the es-

tablishment of schools in aeronautics, important, as it shows a demand for technically trained men. There are schools in France and England, and the U. S. Army made a strong plea for a similar institution before the House Committee on Military Affairs in August. It has been found that it takes longer to produce competent navigators than it does to produce a sufficient number of aeroplanes.

Instruments for use on dirigibles or aeroplanes have also come in for consideration, and considerable thought has been given to safety devices in aeroplanes. The use of the parachute, which is carried in compact form on the aeroplane until ready for use, was demonstrated at Châteaufort in the experiments of Pégoud, who made a 900-ft. drop from his aeroplane, coming slowly and safely to the ground, and later created the sensation of the year by flying upside down. The effect of the Wright patent decision by the U. S. District Court, holding that the use of ailerons and a vertical rudder is the same principle as warping wings and a vertical rudder, is now under consideration by the Court of Appeals. It will in all probability stimulate an invention for some other means of balancing, as in the Dunne V-shaped biplane, which has recently been flown so successfully. The prize of $50,000 offered by the London *Daily Mail* for a flight across the Atlantic in 72 hours from England or Ireland to any point in the United States or Canada has created considerable interest in America.

A National Aerial Defense Association has been organized in England, "to assist by every means possible the extension of experiment and research in relation to the improvement of airships and aeroplanes intended for purposes of war," and the Volunteer Aviation Corps in the United States for state military use shows the universal interest that is being taken in the subject. That aeronautics is a world interest may be noted further in the honoring of an American by the establishment in England of the Wilbur Wright memorial fund which in July amounted to about $2,800. A Wilbur Wright Memorial Lecture was delivered on May 21 before the Aeronautical Society of Great Britain by Horace Darwin on the design and use of aeronautical instruments in aeronautics.

Langley Aerodynamical Laboratory.—On May 1, 1913, the regents of the Smithsonian Institution authorized the reopening of the Langley Aerodynamical Laboratory and the appointment of an advisory committee. A part of their plan is coördination of their activities with the kindred labors of other establishments, governmental and private, and to plan for such theoretical experimental investigations, tests, and reports, as may serve to increase the safety and effectiveness of aerial locomotion for the purposes of commerce, national defense, and the welfare of man.

Langley Day was celebrated by the Aero Club of Washington on May 5 by a meeting in the Smithsonian Institution for the unveiling of a tablet commemorating the work of Samuel Pierpont Langley. The inscription on the tablet reads as follows:

> I have brought to a close the portion of the work which seemed to be specially mine, the demonstration of the practicability of mechanical flight.
> The great universal highway overhead is now soon to be opened.—Langley, 1897

At the same time the Langley medal was presented to Glen H. Curtis for his hydroaeroplane and to Gustav Eiffel for his work in aerodynamics.

Meteorology.—With the renewed interest in aviation the study of the atmosphere and the determination of the direction and force of the wind at different levels has occupied the minds of meteorologists. Professor Hergesell, of Strassburg, has proposed an international system of pilot balloon stations and, carrying out this idea, 15 such stations were established during the year in Germany. Russia expects to establish 50 during the next two years. All Zeppelin airships are now supplied with maps showing the direction of air currents and the approach of storms, and, having a meteorological station on board, it is not difficult for them to lay a course to avoid danger.

Aeronautic Maps.—The tenth International Geographical Congress held at Rome in 1913 considered the proposition of Giovanni Roncagli of the

Royal Italian Navy to prepare an aeronautical map of the world. A promising new method proposed by Th. Scheimpflug of Austria for the making of such maps is the transforming of aeroplane photographs of the earth's surface into geographical or topographical maps.

Spherical Balloons.—In these days of dirigibles, aeroplanes, and hydro-aeroplanes, little is heard of the spherical balloon, and the army balloon factory at Farnborough, England, has been turned into an aircraft factory, and is now manufacturing dirigibles and aeroplanes.

The spherical balloon record for distance is held by M. Rumpelmayer, March 19-21, 1913, from La Motte to Voltchy Iar, Russia, 1,503 miles; for duration, by Schaek from Berlin to Borgset in 1908, when his balloon was up for 13 hours; for altitude the record of Berson and Suring, July 31, 1901, Tempelhof, 34,440 ft., still stands. In the early part of the year it was announced that Joseph Brucher would attempt to cross the Atlantic in the Suchard II.

According to the International Aeronautical Federation the number of pilots for spherical balloons on Jan. 1, 1913, was as follows: Germany, 909; France, 264; Austria, 86; Italy, 67; Belgium, 55; United States, 42; Great Britain, 32; Switzerland, 30; Spain, 30; Holland, 17; Sweden, 17; Argentina, 13.

Aeroplanes.—The most important advance in the improvement and construction of aeroplanes is the self-balancing biplane invented by Lieut. J. W. Dunne, having wings of the "V" type and warping extremities with front elevator and tail eliminated. Jules Felix flew in one of these aeroplanes from East Church, England, to Boulogne, across the English Channel, and claimed that the machine was a great success. It is said that the American rights for this aeroplane have been purchased with a view to immediate manufacture.

From St. Petersburg it is reported that Sikorsky flew in his biplane about Aug. 1 with seven passengers, and while this may not be a record, it is an effort toward the use of the aeroplane as a common carrier. One of the innovations during the year was the addition of luxurious fittings, most apparent in the latest type of Austrian monoplane, the Etrich limousine, which has four seats arranged in pairs, and celluloid windows.

Various safety devices for attachment to the aeroplane have been under consideration. These are mainly apparatus for giving stability or gyroscopic control. A successful test of the gyroscopic control for aeroplanes was carried out on March 23 at San Diego, Cal., by Lieut. Harold Geiger and Lawrence Sperry. M. Moreau of Paris has constructed a balancing aeroplane according to the findings of M. Eiffel in his aerodynamic researches, and in it he made a flight during January of 35 minutes without touching the levers. Safety devices in the shape of parachutes have also been invented; one of them is worn on the shoulders like a knapsack fastened as a harness, which supports the flyer when the parachute opens; in another the parachute is carried longitudinally on the machine in compact form, with a belt around the aviator, to be released from the machine immediately in case of accident. In France the sum of 582,000 francs has been raised to recompense inventors of apparatus which will be a contribution to the safety of heavier-than-air machines. A competition is to be held by the Union for Safety in Aeroplanes in Paris. The first prize is 400,000 francs.

Various prizes and cups were offered for flights during 1913, the largest that of $50,000 by the London *Daily Mail* for the first aeroplane which shall fly across the Atlantic from England or Ireland to any part of the United States or Canada. The *Daily Mail* has also offered $25,000 for the first aviator to fly around England, Scotland, and Wales, and to Ireland in 72 consecutive hours. The Collier Trophy for 1912-13 was awarded to Glen H. Curtis for the invention of his hydro-aeroplane, and the Pommery Cup to Morris Guillaux for winning the "fifth period" between Nov. 1, 1912, and April 30, 1913, covering 1,255 km. from Biarritz, France, to Kollum, Holland. In the Gordon Bennett Cup race 25 machines took part. Prévost won in a 160-h. p.

Deperdussin, creating a new world record for all distances up to and including 100 km. He covered the latter distance in 21 min. 0.4 sec. His highest speed was 192 km. (119 miles) an hour.

Flights.—Among the important flights may be cited that of the four French army pilots in a Farman biplane over the Desert of Sahara, a trip covering about 500 miles from Biskra on the edge of the desert and in Algeria to Touggourt, a military station in one of the oases. A non-stop flight was made on May 1 by Eugene Gilbert, of 513 miles, from Paris to Victoria, Spain, in 8½ hours, and the greatest non-stop flight was that of M. Brindejonc des Moulinais of 1,000 miles on June 10, in 14 hr. 20 min. Another flight worthy of mention was that of 40 miles by R. S. Fowler across the Isthmus of Panama over the canal. He reported that he could see the mechanism of the locks, etc., and caused the issuance of an executive order prohibiting another such flight without permission. In the argument before the House Committee on Military Affairs already referred to, the statement was made that five years ago no one would fly in a wind blowing five miles an hour, and that to-day expert aviators with proper machines or properly powered machines will fly in the face of puffy winds blowing 40 to 45 miles an hour. This has been proven in the upside-down flights of Jules Pégoud, which he said were made to demonstrate that the aeroplane is perfectly safe in any position when properly handled. On Nov. 7 he was outdone by the flight of Maurice Chevilliard, according to newspaper accounts, who selected a stock Farman biplane out of the hangars at Buc, and flew head down in a 50-mile gale, held in by only a light strap.

The pioneers in aeronautics are gradually passing, leaving the work to younger men. We have to record the death on January 7, 1913, of one of the earliest of those interested in the aeroplane, Wilhelm Kress.

In July, 1913, France had 968 aeroplane pilots; Great Britain, 376; Germany, 335; United States, 193; Italy, 189; Russia, 162; Austria, 84; Belgium, 68; Switzerland, 27; Holland, 26; Argentina, 15; Spain, 15; and Sweden, 10.

Aeroplane Records.—Official aeroplane records at the close of 1913 were as follows:

Altitude

One person.—Perreyon, Bleriot monoplane, March 11, 1913, 19,600 ft.
Two persons.—Perreyon, Bleriot monoplane, June 3, 1913, 16,270 ft.
Three persons.—Von Blaschke, Lohner biplane, June 29, 1912, 11,740 ft.
Four persons.—Sablating, Union biplane, Oct. 1, 1913, 9,300 ft.
Five persons.—Sablating, Union biplane, Oct. 1, 1913, 6,830 ft.
Six persons.—Gongenheim, Farman biplane, Feb. 10, 1913, 3,600 ft.
Seven persons.—Frangeois, Savary biplane, May 8, 1913, 2,790 ft.

Duration

One person.—Moulinais, Morane-Saulnier monoplane, June 10, 1913, 14 hr. 20 min.
Two persons.—Canter, Mar. 31, 1913, 6 hr. 9 min.
Three persons.—Oelrich, Mars biplane, July 5, 1912, 2 hr. 41 min.
Four persons.—Grulich, Harlan monoplane, Jan. 25, 1913, 1 hr. 35 min.
Five persons.—Champel, Champel biplane, Apr. 14, 1913, 3 hr. 1 min.
Six persons.—Faller, Aviatik, Feb. 10, 1913, 1 hr. 10 min.
Seven persons.—Faller, Aviatik, Jan. 4, 1913, 20 min.
Eight persons.—Frantz, Savary, May 8, 1913, 11 min.
Ten persons.—Noel, Oct. 2, 1913, 20 min.

Speed

One person.—Prévost, Deperdussin, Sept. 29, 1913, 126.59 miles per hour.
Two persons.—Lagagneux, Zeus monoplane, July 20, 1912, 84.42 miles per hour.
Three persons.—Nieuport, Nieuport, March 9, 1911, 63.87 miles per hour.
Four persons.—Mandelli, Autoplane, Aug. 16, 1912, 65.84 miles per hour.
Five persons.—Busson, Deperdussin, Mar. 10, 1911, 54.18 miles per hour.

Distance Covered in One Day

Stoeffler, Victor, Aviatik biplane, October 14, 1913, 1,342 miles, Johannesthal to Mulhausen, 23 hours.

The Aeroplane Industry.—The figures show an increase in France of more than 40 per cent. in the number of aeroplanes built in the first three months of 1913 over previous years, while the comparative output of aeronautic motors during the same period was almost double both in number and total horse power. In Germany there are some 35 aeroplane construction works, but most of them are not in a flourishing condition, as most

of the money available for this purpose goes to two or three companies.

Hydro-Aeroplanes. — Hydro-aeroplanes have come to stay, and during the year special prizes and meets have been provided for. One is scheduled to be held at Monaco, where tests for altitude, volplaning, handling, towing, and navigability will be the principal features. At Deauville the French Minister of the Navy, M. Delcasse, offered a prize of 50,000 francs for the best hydro-aeroplane, and also offered to buy the first and second best machines taking part in the meet, at 60,000 and 50,000 francs respectively. The race was to be over the Seine, Paris being the starting point and Deauville the finish.

Dirigible Balloons.—No country has done more than Germany in the development of dirigibles, especially those of the Zeppelin type, which are to a great extent a combination of the lighter-than-air and the heavier-than-air machines. While the latest and finest model of the Zeppelin machine on her maiden trip had an accident which resulted fatally to a number of officers, there was nothing structurally wrong to cause the wreck in the air. According to the official report issued on Oct. 29, it was due to a partial vacuum formed in the central gondola behind a new kind of wind-shield, used for the first time. It sucked in the gas escaping from beneath the aluminium structure of the dirigible into the gondola where it was exploded by a spark from the motor. While the Zeppelin airship is a success from a navigation point of view and carries more than 30 passengers, reaching some 70 km. (43,5/10 miles) an hour, it is not a financial success; the report of the Zeppelin Company for the fiscal year ending Aug. 1 shows a loss of $375,000, due to the high cost of the experimental work.

There are several different designs of dirigibles in Germany. The difference in the construction of the Schutte-Lanz and Zeppelin, for example, lies in the material of which they are built and in the outer shape; both are of the rigid type and have baloonets impervious to gas. The Parseval dirigibles, however, are the most widely used in Germany, as they have the great advantage over the rigid type that they can be emptied anywhere and packed for transportation. There are in Germany 20 dirigibles and in France 19. The French dirigibles are inferior to the German in gas capacity and radius of action. England has built during the year two dirigibles, the Delta and the Eta. It is reported that Count Zeppelin has under way a new and greater dirigible, which he plans to pilot himself across the Atlantic to the United States, and may even cross the continent to the Panama-Pacific Exposition at San Francisco in 1915.

Dirigible records at the close of 1913 were as follows:

Altitude.—E. Conts, Astra, semi-rigid, 212,000 cub. ft. capacity, 10,000 ft.

Duration. — Zeppelin, rigid, 776,000 cub. ft. capacity, October 13, 1912, 31 hours.

Speed.—Sachsen, rigid, 54⅓ miles per hour.

Carrying Capacity.—Zeppelin, rigid, 14,000 lb.

Military Aeronautics.—One of the most important events in military aeronautics in the United States was the introduction in Congress on May 16 of a bill (H. R. 5304) "to increase the efficiency of the aviation service of the Army," on which hearings were held by the House Committee on Military Affairs, Aug. 12-16. This bill contemplates the creation of an aviation corps which shall be a separate arm of the Army, and the establishment of an aviation school for the instruction of officers and enlisted men. The aviation corps should have charge and operate all military aircraft, including balloons and aeroplanes. The total appropriations for the last five years for aeronautics in the Army amounted to $255,000, and the appropriation for 1913 was $125,000, the smallest sum appropriated by any one of the eight leading nations of the world. Next to the United States comes Mexico with $400,000. Italy has $2,100,000, Japan about $1,000,000, England $3,000,000, Russia $5,000,000, Germany $5,000,000, and France $7,400,000.

The Aero Club of America has presented Capt. W. I. Chambers, head of the Aeronautical Corps of the Navy, with a special medal. The Clarence H. Mackay silver trophy, presented

to the War Department through the Aero Club of America, to be competed for by the military airmen of the United States in a series of reconnaissances, was won in 1912 by Lieut. Henry H. Arnold.

The first French Aero station was built at Evereaux with funds raised by national subscription. It contains a model hangar, repair shop, telephone post, etc. This is the first of 53 which will be completed by October, 1914.

The military aeronautical equipment of the different countries is reported as follows:

France.—Fourteen dirigibles and eight under construction; 420 aeroplanes.
Germany.—Fifteen dirigibles and five under construction; 420 aeroplanes.
Russia.—Twelve dirigibles and ten under construction; 200 aeroplanes.
England.—Six dirigibles and two under construction; 168 aeroplanes.
Japan.—Two dirigibles and one under construction; 23 aeroplanes.
United States.—Seventeen aeroplanes.
Italy.—Eight dirigibles and two under construction; 153 aeroplanes.
Mexico.—Seven aeroplanes.
Austria.—Seven dirigibles and three under construction; 136 aeroplanes.
Brazil.—Three dirigibles; 18 aeroplanes.
Belgium.—One dirigible and one under construction; 40 aeroplanes.
Spain.—One dirigible; 48 aeroplanes.
Bulgaria.—One dirigible; 28 aeroplanes.
Roumania.—Twenty-four aeroplanes.
Chili.—One dirigible; six aeroplanes.
China.—Twenty-five aeroplanes.
Greece.—Fifty-two aeroplanes.
Switzerland.—Four aeroplanes.
Turkey.—Two dirigibles; 15 aeroplanes.
Servia.—Eight aeroplanes.
Argentine.—Four aeroplanes.
Australia.—Four aeroplanes.
Norway.—Three aeroplanes.
Montenegro.—Three aeroplanes.
Denmark.—Six aeroplanes.
Holland and Sweden.—Three aeroplanes.

The dirigibles in the German Army were increased during the year by eight: 4 Zeppelins, 2 Parsevals, 1 Schutte-Lanz, and 1 "M" type, making a total of 13. (See also XII, *The Army.*)

INDUSTRIAL MANAGEMENT

CHARLES BUXTON GOING

Little outward event appears to mark the current history of industrial management during the year 1913. The record is rather of a process similar to that defined in the YEAR BOOK for 1912 under this same heading (p. 587), an adjustment of thought and practice to established principles. To this may perhaps be added a further process of "taking stock" of accepted principles, and of estimating the magnitude and position of industrial management as a definite province, for the purpose of reducing its elements to codified form so that it may be recorded and imparted to learners after the manner of an applied science. This adjustment is discernible in three principal directions: physical or practical, institutional. and educational.

In practical application, constant expansion is clearly evident in the increasing number of manufacturing and commercial establishments which are consciously seeking betterment. either through the employment of consulting specialists or through the study and application of advanced doctrines of industrial management by their own staffs.

Institutionally, the phenomena are the devotion of a larger amount of study and attention to industrial-management problems by the older engineering societies, especially the American Society of Mechanical Engineers; the efforts of the societies already founded, the Efficiency Society and the Society to Promote the Science of Management; and the more recent organization of the Western Efficiency Society. This last named organization, chartered under the laws of the state of Illinois, draws its membership chiefly from men engaged in business and manufacturing in Chicago and its vincinity, and focuses its attention upon the practical affairs of profit-making enterprises. In this respect it is differentiated from its forerunner, the Efficiency Society, Incorporated, which is all-comprehensive and gives equal weight in its councils and deliberations to the canons of efficiency in non-profit-making and wholly altruistic effort.

Educationally, the most important

events are the establishment of the courses in industrial organization at the College of Commerce and Administration of the University of Chicago, and the very active discussion of the advisability of establishing a course in business engineering at the Massachusetts Institute of Technology. The report of a committee appointed by the Alumni Council of the Institute is perhaps one of the most significant and interesting documents of the year. It contains a preliminary survey of what has already been done at American institutions, a discussion of plan and scope, a series of recommendations, and a definite schedule of proposed courses.

In this connection it is interesting to note the extent to which formalized instruction in business administration, organization, management, and kindred subjects has already been established in American colleges. Postgraduate courses have been organized at four institutions: Harvard University, Dartmouth College, Northwestern University, and the University of Pennsylvania. Undergraduate courses have been established in 11 universities: California, Carnegie, Chicago, Cincinnati, Illinois, Lehigh, Pennsylvania State College, Michigan, Minnesota, New York University, and Wisconsin; while evening courses are given at New York University and Northwestern University. In addition to these curricula requiring personal attendance, systematized instruction is given in correspondence courses established by the Alexander Hamilton Institute.

The current literature of industrial management during 1913 has generally reflected the tendency referred to at the outset of this review, that is, the effort to reduce principles to rules of practice, or to examine concrete examples of practice for the purpose of identifying embodied principles. Three series of articles which in continuity of thought and progressive development of a single idea merit specific mention, though they have not yet been collected between covers, are to be found in A. Hamilton Church's "Rational Management" (*The Engineering Magazine*, January to June, 1913), Benjamin A. Franklin's "Experiences in Efficiency" (*ibid.*, August *et seq.*), and L. M. Gilbreth's "Psychology of Management" (*Industrial Engineering*, April, 1912, to May, 1913). The principal books of the year are listed in the biliography below.

Generally, the public presentation of opinions and conclusions as to the doctrines and the practice of industrial management during the year has been marked by a subsidence of sectarian feeling, and by approximation toward a general agreement on certain fundamental doctrines. This corresponds with the trend of evolution in other branches of knowledge which are actually founded on a definite science or a base of actual scientific truth.

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established authorities and thus assembling a review of history, economic influences, modern tendencies, cost accounting, depreciation, labor, materials, construction and theories of management.

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NAVAL ARCHITECTURE AND MARINE ENGINEERING

DANIEL H. COX

Shipbuilding.—During the year 1913 nothing of striking importance has occurred in matters relating to naval architecture and marine engineering. The various building yards throughout the country have been fairly busy, mainly in connection with carrying out building programmes decided upon some time ago as a result of the imminent completion of the Panama Canal. General business conditions, due to tariff legislation, disturbances on the Mexican frontier, and other matters affecting the nation at large, have not been such as to encourage new construction of any sort, and the shipbuilding interests have naturally suffered. The outlook for the immediate future seems brighter, and there is a general feeling that a period of activity in matters connected with ships and shipping is at hand.

Dimensions of Vessels.—Notwithstanding the violent outcry in some directions against the prevailing tendency to increase the dimensions of vessels engaged in the trans-Atlantic passenger service, the building programme of the various representative steamship lines and also the naval programmes of the world powers show that those who control these matters still feel that progress in design must be accompanied by increase in dimensions. How far this steady growth in size of vessels will lead us, it is idle to speculate. The only definite limitation seems to be the mechanical difficulty of providing harbor, docking, and wharfage facilities. While, within limits, harbors may be dredged, dry docks enlarged and wharves lengthened, there must come a point where the resultant economic gain in cost of operation of the larger as compared with the smaller vessels will be more than offset by the enormous expenditure in providing the additional entrance and handling facilities required for the larger vessels, particularly as the smaller vessels will in no way benefit thereby. This year the magnificent *Imperator* was placed in service, of larger dimensions than, and thus by comparison reducing the prestige enjoyed by, the *Oceanic* and her ill-fated sister, the *Titanic*, just as these vessels in turn diverted attention from the *Mauretania* and *Lusitania*. Each new battleship contemplated as an addition to any of the great navies is similarly of greater displacement, greater speed, and will carry larger guns than its immediate predecessor (see also XXI, *The Navy*).

The *Imperator* arrived in New York harbor on June 18, having completed her maiden voyage in 6 days, 5 hours

and 12 minutes. Her passenger list included 350 first-class, 400 second-class, 1,000 third-class, and 1,700 steerage, a total of 3,450. The best run was 556 miles from noon to noon, and her best hourly speed was 23 knots. This vessel, the largest in the world at the present time, is 919 ft. in length and 98 ft. beam; her gross tonnage is 50,000, and her contract speed of 22½ knots is secured with turbines developing 63,000 h. p. The bridge is 90 ft. above water. Her masts measure 246 ft. from keel to truck. The funnels extend 70 ft. above the upper deck and about 32 ft. in fore and aft direction, 18 ft. in diameter. She carries 83 lifeboats and two motor launches which are equipped with wireless apparatus having a range of 200 miles. The vessel itself has a wireless apparatus with a range of 1,500 miles, and carries three wireless operators. She carries one anchor of 26,500 lbs., two others of 17,600 lbs., and a fourth of 11,500 lbs. Seven decks out of a total of ten are devoted to the use of the first-cabin passengers, and there are many large saloons and living rooms. There are four electric elevators for passengers and five freight elevators. A Roman bath two stories in height, with a pool 39 by 21 ft., having nine feet of water, is a remarkable feature.

The new Hamburg-American liner *Vaterland* was launched during the month of April. The enormous size of this vessel may be estimated from the fact that her tonnage will be 55,000, or 5,000 tons in excess of the *Imperator*, and her passenger capacity will be 4,050. During the same month the new Cunarder *Aquitania* was also launched, and although not so large as the Hamburg-American vessel, her dimensions show a considerable increase over the *Mauretania* and *Lusitania*, the present largest Cunarders. The *Aquitania*, 901 ft. long, 97 ft. beam, has a tonnage of 47,000; her speed will be 23 knots, and her passenger capacity 3,250.

Safety at Sea.—As a direct result of the tragic fate of the *Titanic* a widespread demand for investigation of all matters relating to safety at sea has borne definite fruit. Quite naturally some of the resultant changes are now criticised by those who travel on the sea. Added lifeboat capacity means reduced space on the promenade deck; further watertight subdivision means a certain loss in comfort in interior accommodation. In all such matters it is a question of give and take, of arriving at a solution that is a practical one. From the likelihood that when needed lifeboats may be found impossible of operation, witness the recent *Volturno* disaster, it seems that the important lines of progress are: (1) making vessels as capable as practicable of withstanding damage by collision; (2) providing them with the best obtainable means of communication with shore stations and other vessels, wireless telegraphy, the submarine bell and signal, and the like; and (3) providing a sufficient and efficient crew of officers and men, who shall be unhampered in their duties by any instructions looking toward record passages at the risk of safety. It is of the utmost importance that the vessels of all nations should, so far as possible, be subject to the same laws and restrictions in these matters, and international conferences are being held with this object in view.

It is interesting to note that as a direct result of the *Titanic* disaster, her sister ship the *Olympic* was rebuilt at an enormous expense, an inner skin added, forming a complete double hull extending to a considerable height above the water-line, a feature that has been also provided for in the other large trans-Atlantic passenger vessels whose construction was commenced subsequent to the *Titanic* disaster.

The revised rules of the British Board of Trade relating to life-saving appliances on board ship, tentatively announced in September, 1912 (*A. Y. B.*, 1912, p. 57), went into effect on March 1. All foreign-going passenger steamers are now required to carry lifeboats sufficient in number and capacity to accommodate the total number of persons which each ship is certified to carry. As to the location of davits, the type of lifeboat authorized and the provision of pontoon rafts, the new rules follow the recommendations of the special committee of the Board of Trade appointed after the *Titanic* disaster to consider the ques-

tion of lifeboats and davits (*ibid.*), which presented an interim report early in January.

Marine Engineering.—The tendency of marine-engine design in this country still indicates a distinct leaning toward the well known and the conservative. Other nations are spending large sums, and with excellent results, in the development and manufacture of Diesel engines. With us, if we eliminate Government vessels, the Diesel engines in operation or contemplated are but few. With the turbine situation it is much the same. The advantages of the turbine, either geared or not, or in combination with reciprocating engines in certain special cases, have been more fully recognized by the naval authorities than by the operators of commercial vessels; if the naval turbine-driven vessels are eliminated, but few others can be found.

Turbine builders are concentrating their efforts on the development of reduction gearing with very considerable success. The geared turbine, certainly for marine work, possesses so many advantages that unquestionably it has come to stay in one form or another. Its use permits the selection of proper propeller dimensions, as the shaft revolutions can be adjusted to suit any particular case, and at the same time the design of the turbine itself can be carried out with a view to securing maximum efficiency, whereas in the direct-drive turbine installations the necessary restrictions on shaft revolutions generally make it impossible to secure the best results from the turbine. The use of oil fuel, with consequent economic advantages, is becoming more and more general, not only in the Navy, but in all classes of steam vessels.

Yachting.—The past season of 1913 has seen somewhat of a revival in the building of steam yachts, more vessels of this class having been added to the fleet during the year or placed under construction than for many years past. For several years the possibilities of the gasoline or the Diesel engine have held out great inducements, and caused steam to be looked upon as old fashioned. With the increase in cost of gasoline and the present high first cost of Diesel engines, many have come to the conclusion that steam engines, preferably with oil-fired boilers, will for some years at least be the most satisfactory prime movers. The certainty of international races for the America Cup in 1914 has undoubtedly had a stimulating effect upon those interested in yachts and yachting, and the progress on the Panama Canal and the removal of the duty on foreign-built yachts are contributing causes working for renewed activity in this sport.

PHYSICAL PROPERTIES OF METALS AND ALLOYS

WILLIAM CAMPBELL

Structure of Metals.—The old idea of the structure of a metal was based on its fracture; from this came the terms, crystalline, granular, fibrous, and amorphous. The microscope has proved, however, that all metals are crystalline, and that the structure revealed by fracture may have no relation to the structure of the metal, and depends not only on the method of breaking, but also on the mechanical and thermal treatment. All metals are built up of crystalline grains with distinct orientation, the size and shape depending chiefly on the rate of solidification and the mass of the metal.

The structure shows no change when strained within the elastic limit, but when once this is passed there is a permanent deformation, and within the grains themselves we find slip-lines and slip-bands, which increase in number as the strain increases, until finally the grains are distorted and broken down, and the structure becomes composed of a broken-up conglomerate. The elastic limit is greatly increased thereby and the metal is much harder, but the ductility, as a rule, falls off. On annealing such a strained metal the crystals or grains grow with distinct polygonal boundaries and are generally twinned, the size depending on the time and temperature of annealing, the amount of work the metal has undergone, and

upon its cross-section. The strength falls off, the metal becomes comparatively soft, and its ductility increases.

The recent researches of Beilby (*Jour. Inst. of Metals*, VI, 5) tend to confirm his theory that cold working of a metal produces an amorphous modification on the surfaces of the slip-lines and slip-bands, which modification is harder and stronger than the original crystalline one. Reheating to temperatures around 300 deg. C. causes the transformation from amorphous to crystalline state. Of interest in this connection is Quincke's hypothesis of the foam structure of metals (*Int. Zeitschr. für Metallographie*, III, 23), and Cohen's views on the so-called "strain disease of metals" (*Zeitschr. für Elektrochemie*, XIX, 19).

Fusibility of Metals.—The melting points of metals have now been determined with great accuracy and are given by Burgess in Circular 35 of the Bureau of Standards.

Hardness. — Much confusion exists as to the hardness of metals, because we may have several different kinds, such as resistance to scratching, cutting, indentation, permanent deformation, or to elastic impact. For the measurement of indentation hardness the Brinell machine is in general use, whereby a hardened steel ball, usually 10 mm. in diameter, is forced into the metal under a load of 3,000 kg. for iron and steel, or 500 kg. for softer metals, and the hardness number calculated from the spherical area of the depression formed. The Shore scleroscope measures the rebound of a hard body from the surface of the metal to be tested and the height of the rebound gives the measure of hardness. Both of these instruments are used to measure the difference in hardness between different metals and also of the same metal after different mechanical and heat treatment.

Galy-Aché (*Revue de Metallurgie*, X, 585) reviews our knowledge of the cold-working of metals. Mechanical hardening does not occur until the elastic limit has been reached and permanent deformation takes place. The elastic limit is raised thereby by an amount proportional to the force producing the deformation. Reheating decreases the hardness, which reaches a minimum at what may be called the complete annealing temperature of the metal.

Following the theory that amorphous modifications of metals exist, when a metal is perfectly annealed it consists of an aggregate of crystals surrounded by a strong and flexible ground mass or cement of amorphous metal. Then the amorphous cement takes up the elastic deformations, while the crystals yield to permanent deformations by slip-lines and slip-bands.

Constitution of Alloys.—The rapid advance in our knowledge of alloys is in main due to metallography. For most of the binary and many of the ternary alloys the complete thermal diagrams have been worked out, whereby we see the relation between temperature and composition and the changes which take place not only when an alloy passes from the liquid to the solid state, but also in the solid condition.

The constitution of iron and steel has been the subject of much work, and the different ideas are set forth in the diagrams of Benedicks, Goerens, Upton, and Ruff (Howe, *Bull. Am. Inst. Min. Engrs.*, 1912, p. 1181). Iron is capable of holding 1.7 to 2 per cent. of carbon in solid solution (austenite), but with fall of temperature this solid solution tends to break down into pure iron (ferrite) and carbide of iron (cementite). By rapid cooling, as by quenching, much of the carbon can be held in solution and the metal is hardened thereby. Tempering tends to break down the solid-solution austenite into transition products, martensite, troostite, sorbite, etc., the constitution of which continues to be a source of much work and discussion. When there is more than two per cent. of carbon present the excess is found either as cementite or graphite, depending primarily on the rate of freezing and cooling. There are two main theories. The one states that we have two systems, the austenite-cementite or metastable, the austenite-graphite or stable. Goerens thinks that all irons freeze as austenite-cementite and that graphite is the product of the decomposition of cementite.

The constitution of the copper-zinc alloys (brasses) has been worked out

by Shepherd and by Carpenter and their tensile strength by Lohr (*Jour. Physical Chem.*, XVII, 1). Up to about 36 per cent. of zinc the alloys are homogenous solid solutions (*alpha*); beyond this point a second solid solution, *beta*, makes its appearance, and at 47 per cent. zinc the alloy is entirely *beta*. Carpenter (*Jour. Inst. of Metals*, VII, 70) has shown that just about 450 deg. C. the *beta* tends to break down into *alpha*, and a third solid solution, *gamma*. The maximum strength is in the *beta* region at 45 per cent. zinc and is about 31.7 tons per square inch.

The copper-tin alloys have been worked out by Heycock and Neville and by Shepherd, and a new transformation in the solid state is recorded by Hoyt (*Inst. of Metals*, Ghent meeting, 1913). They resemble the brasses in that up to about 10 per cent. of tin the alloys are homogeneous solid solutions, but when the tin is increased a second solid solution, *beta*, comes in; this *beta* breaks down into *alpha* and a third solid solution, *gamma*, at about 450 deg. C. Hence the properties of the brasses and the bronzes, like steel, can be profoundly modified by heat-treatment.

German silver is a white ductile alloy containing 55 to 60 per cent. copper, 15 to 20 per cent. nickel, and 20 to 30 per cent. zinc, and consists of crystals or grains of a single solid solution. Hudson (*Jour. Inst. of Metals*, IX, 109) has studied the effect of annealing and found that one hour at 800 deg. C. was insufficient to get rid of the "cored" structure, but one hour at 900 deg. C. was sufficient to produce a homogeneous alloy.

H. S. and J. S. G. Primrose (*ibid.*, 158) subjected Admiralty gun metal (copper 88, tin 10, zinc 2) to heat treatment and found that simple annealing for 30 minutes at 700 deg. C. gave a maximum increase in strength and elongation, and the homogeneity and other properties were improved.

The ternary alloys of nickel, manganese, and copper have been found by Parravano (*Gazzetta Chim. Ital.*, XLII, ii, 367, 385, 513) to consist of homogeneous solid solutions and heterogeneous structure in these alloys is due to imperfect diffusion. The ternary alloys of iron, nickel, and manganese are similar, while the alloys of iron, manganese, and copper are somewhat more complicated because iron and copper are not completely soluble in each other in the solid. Hence two distinct constituents are found in many of the alloys.

Rosenhain and Archbutt (*Proc. Institution Mech. Engrs.*, 1912, 319) have worked out the aluminium-zinc diagram together with the physical properties. They were able to roll and draw an alloy with 25 per cent. zinc. An alloy with 25 per cent. zinc and three per cent. copper gave a hot-rolled bar with 30.9 tons per square inch tensile strength and an elongation of nearly 17 per cent.

Magnetic Permeability. — In 1903 Heussler prepared alloys of copper, manganese, and aluminium and found them to be magnetic. This magnetism was explained by a ternary compound. Ross (*Trans. Faraday Soc.*, VIII. 185) puts forward the theory that the alloys consist of solid solutions of the binary compounds Cu_2Al and Mn_2Al, but Rosenhain has shown that the alloys of aluminium and manganese alone are strongly magnetic.

Electric Conductivity. — The variation in electric conductivity of alloys is at once made clear when the thermal diagram is considered. Guertler's work (*Jour. Inst. of Metals*, VI, 135) shows that the conductivity of alloys composed of solid solutions or mechanical mixtures of the metals increases as the temperature rises, while that of intermetallic compounds decreases.

Corrosion.—The corrosion of brass has been the subject of a good deal of research. Two causes have been assigned. First, when the alloys are composed of the two constituents *alpha* and *beta*, there is a difference of potential between the two, the *beta* becomes the anode and is destroyed through the zinc going into solution, leaving a porous mass of copper behind. Second, when the alloy consits of homogeneous *alpha*, a difference of potential may be set up by adherent impurities on the surface or by strain, and corrosion begins through electrolysis. When once begun, the presence of metallic copper, which becomes the cathode to the *alpha* solid solution, hastens the corrosion.

XXIV. MATHEMATICS AND ASTRONOMY

MATHEMATICS

E. B. Wilson

Annual Production. — Many persons believe that mathematics is a dead science and that the mathematician, like the teacher of Greek and Latin, does but go over accomplishments of the past. Even those who know that mathematical doctrines are constantly advancing have often but a small idea of the amount of research published. The *Jahrbuch über die Fortschritte der Mathematik* is an annual publication which lists all the titles of mathematical work coming to the attention of the editors, with brief synopses of most of the original articles. So large is the task of assembling the material that this authoritative review of mathematical investigation is always three years behind. Volume XLI, covering the year 1910, appeared in 1913; it lists about 3,700 titles and contains 1,054 pages, exclusive of indices and prefatory matter.

In the United States the *Transactions of the American Mathematical Society*, the *Bulletin* of the Society, the *American Journal of Mathematics*, *the Annals of Mathematics* and the *American Mathematical Monthly*, are the five leading periodicals devoted exclusively to mathematics; they print in the neighborhood of 2,000 pages annually. The *Transactions* and the *Journal* appeal only to the highly trained professional mathematician interested in advanced research. The *Annals* aims to provide material intelligible to a large range of graduate students and teachers of ordinary collegiate courses in mathematics. The *Monthly* is still less technical and contains much that is of interest to teachers in the better grade of high schools and to undergraduate students. The *Bulletin* is of somewhat general nature, containing some original articles, many book reviews, and personal notes. This year Prof. M. Bocher (Harvard) has retired from the position of editor-in-chief of the *Transactions;* Prof. L. E. Dickson (Chicago) succeeds him. The management of the *Monthly* has been completely changed; Prof. H. E. Slaught (Chicago) has been made managing editor and, with the coöperation of his associates, is making a strenuous campaign on behalf of the enlarged and improved *Monthly*.

Path of Falling Bodies.—Since the time of Gauss and Laplace, a century ago, the question of the path followed by a body falling from a moderate height above the surface of the ground has been subject to theoretical and experimental investigation. A body released at a height does not follow an exactly vertical path; for, as the earth turns on its axis, a point such as the top of the Eiffel tower, being farther than the base from the axis, and having the same angular velocity as the base, is moving faster than the point on the surface of the ground immediately beneath. Hence a body released from the top has an easterly velocity in excess of the velocity of the point vertically underneath, and consequently falls to the east of the vertical. This chief part of the phenomenon has long been known both theoretically and experimentally. The question has been raised whether the body does not also deviate slightly either to the north or south. The earlier mathematicians

found a slight deviation toward the equator, and some experimenters have thought they corroborated this finding, though many persons have felt that the experimental data were insufficient to establish a definite conclusion. The calculation of the deviation has to be effected by approximations, an exact solution being too intricate for even modern mathematical science. For the sake of simplicity it has been customary to retain only the expressions for the first approximation, and it has been assumed that the terms expressing the second approximation would be insignificantly small. R. S. Woodward, President of the Carnegie Institution, has treated the problem in the *Astronomical Journal* for Aug. 4, 1913, taking into account the previously neglected terms of the second order which he finds are not negligible, and has shown that there is an appreciable deviation *away* from the equator. (See also *Astronomy, infra.*)

Origin of Planets.—In the *Memoirs of the American Academy of Arts and Sciences*, XIV (1913), Prof. Percival Lowell (Massachusetts Institute of Technology) discusses mathematically the "Origin of the Planets." He finds that each planet has formed the next one in order outward from the sun, that the positions of the planets are not haphazard, and that the solar system forms an articulated whole evolved in definite order. Theories of the origin of the solar system and explanations of its evolution into its present form have a great fascination for astronomer, mathematician, and the general public. As we really are acquainted only with the present status of the system, all discussions of its origin are largely hypothetical and many of them differ widely among themselves. It is particularly interesting, however, to have a theory developed which offers an explanation of the distribution of the planets in distance from the sun.

Theory of Relativity.—The theory of relativity has been mentioned in all previous volumes of the YEAR BOOK (1910, pp. 601, 602; 1911, pp. 567, 632; 1912, p. 658). A technical mathematical treatment of the subject has been given by Professors E. B. Wilson and G. N. Lewis (Massachusetts Institute of Technology) with the aid of four-dimensional non-Euclidean space and a vector analysis appropriate thereto (*Proc. Am. Acad. of Arts and Sciences*, XLVIII, pp. 389-507). The originator of the theory, Prof. A. Einstein (Zürich) now comes forward with a modification or generalization of the theory (A. Einstein and M. Grossmann, *Entwurf einer verallgemeinerten Relativitätstheorie und einer Theorie der Gravitation*, B. G. Teubner, Leipzig, 1913) framed so as to include a theory of gravitation. In the older theory a ray of light travelling in free space pursued a straight path with constant velocity; in the newer theory the ray is attracted by matter so that a ray passing near the sun would have its direction bent inward toward the sun, the velocity increasing during approach to the sun and decreasing during retreat. In the older theory energy was possessed of inertia, that is, of mass; in the newer theory energy is assigned another attribute of ordinary mass, namely, the power to attract other mass and to be attracted by it. (See also XXVI, *Physics.*)

Foundation of Mathematics in Logic.—The attempt of the pure mathematician is ever to reach a greater degree of rigor in his demonstrations, a greater degree of certainty for his propositions. This led during the last century to the arithmeticization of mathematics, that is, to the attempt to lay the ultimate foundations of mathematical science in the properties of the ordinary integers of arithmetic, which are probably as well known as any mathematical objects. Later the attempt has been made to go further back and to found mathematics upon the very laws of logic. This programme has been systematically carried out by B. Russell and A. N. Whitehead in their three-volume work *Principia Mathematica* (Cambridge University Press). The work is very technical and difficult reading, and most mathematicians will be content to admire it without going quite so deeply into the fundamentals as far as their own work is concerned.

ASTRONOMY

HENRY NORRIS RUSSELL

The present summary deals necessarily with the published work of the year,[1] and hence, in many cases when the reduction of observations is laborious, with observations of the previous year.

Observatories and Instruments.—The great tower telescope of the Solar Observatory on Mount Wilson is now completed, and gives very satisfactory results. The figuring of the mirror for the 100-in. reflector of the same observatory is in progress, and the chief difficulties of the problem seem to have been overcome. A reflector of six-foot aperture is planned for the new observatory which the Canadian Government proposes to erect in British Columbia. On the other hand, the completion of some of the large refractors now under construction has been very seriously delayed by the extreme difficulty of getting suitable disks of glass for the objectives.

Longitude and Time.—A preliminary determination of the difference of longitude between Paris and Arlington, Va., by means of wireless telegraphy, has been made by French astronomers, with very encouraging results, the transmission time of the signals across the Atlantic being only 0.03 sec. (*C. R.*, CLVII, 165). An extensive series of observations for the same purpose is to be carried out during the winter of 1913-14. Any observatory within several hundred miles of Washington may determine its longitude at the same time by using these radio-signals. Standard time, in three zones, three, four and five hours slow of Greenwich, has been adopted in Brazil.

The Sun.—The solar surface at the beginning of the year was very quiet, and on most days no spots were visible. Most of the few spots observed were in low latitudes, but small groups appeared about 30 deg. north and south of the solar equator, the precursors of the new cycle of activity now commencing. Hale has taken advantage of this absence of local disturbances to detect and investigate the general magnetic field of the sun. The existence of a strong magnetic field in sun spots is proved by the breaking up of certain lines in the spectrum into doublets, whose components are circularly polarized in opposite directions, so that by placing a Nicol prism and a quarter-wave plate in front of the slit of the spectrograph, either one of them can be extinguished at will. With a weak magnetic field the components would not be separated; but with the apparatus just described first one side and then the other of the broadened line may be extinguished, causing a shift in its apparent position to the right or the left in successive strips of spectrum photographed on the same plate. Displacements of this character have been observed in the case of several faint lines of iron and nickel. They are excessively small (0.0015 Ångstrom unit), so that very great care had to be taken to eliminate all errors of observation. The observed displacements are of opposite sign in opposite hemispheres of the sun, and reach a maximum value at about 45 deg. north or south of the equator, as they should theoretically do if arising from a general magnetic field of the sun. The magnetic poles of the sun appear to be at or near the poles of rotation, and the north magnetic pole lies near the north pole of the sun. A first approximation for the vertical intensity of the magnetic field at the poles is 50 gausses. (*Ap. J.*, XXXVIII, 27).

St. John, studying the radial motions in sun spots discovered by

[1] References to periodicals are given under the following abbreviations:

A. J., *Astronomical Journal*, Albany.
A. N., *Astronomische Nachrichten*, Kiel.
Ap. J., *Astrophysical Journal*, Chicago.
C. R., *Comptes Rendus de l'Academie des Sciences*, Paris.
M. N., *Monthly Notices of the Royal Astronomical Society*, London.
VJS., *Vierteljahrsschrift der Astronomischen Gesellschaft.*

The Roman numerals denote volumes; the Arabic numerals pages, except in references to *Astronomische Nachrichten*, where they denote individual numbers of the periodical.

Evershed in 1909, has shown that in the lower layers of the sun's visible atmosphere there is an outward flow of material from the spot, while in the highest layers the flow is inward, the rate of motion varying from one kilometer per second outward in the lowest layers to 1.5 km. inward at the top. A sun spot may be compared with a terrestrial tornado, seen from above the clouds. There is a whirling upward rush of material in the deep-seated layers, which at the visible surface spreads out radially with rapidly decreasing velocity. The inward motion in the highest layers is a secondary effect (*Ap. J.*, XXXVII, 322).

Abbot, summarizing the results of eight years' work of the Smithsonian Astrophysical Observatory in Volume III of its *Annals*, gives the value of the solar constant of radiation as 1.932 cal. per square centimeter per minute; that is, the energy in a beam of sunlight, outside our atmosphere, of this cross section would suffice to raise the temperature of one gramme of water at the rate of 1.932 deg. C. per minute, and that in a beam one meter square would be equivalent to 1.8 h. p. Simultaneous measurements at stations in California and Algeria seem to prove conclusively that the radiation of the sun is subject to a variation, occurring irregularly in periods of a week or ten days, whose fluctuations are irregular in magnitude, but usually within the range of seven per cent. It appears also that the sun sends us most heat when sun spots are most numerous, the solar constant increasing by 0.07 cal. when the sun spot numbers increase by 100 units, which is about the usual change from minimum to maximum. From the distribution of energy among the different wave lengths in the solar spectrum, Abbot concludes that the effective absolute temperature of the radiating layers of its surface greatly exceeds 6,000 deg. C. and may exceed 7,000 deg.

Eclipses.—The three partial solar eclipses, and two total lunar eclipses of the year were of little importance. Many observations of the solar eclipse of April 17, 1912, were published during 1913, dealing largely with the profile of the moon's limb and the track of the shadow on the earth's surface.

The Earth.—The variations of latitude in 1912 showed a range of about 0″.35, a decrease from that of 1911, but with little further diminution during the year (*A. N.*, 4665). Those for 1913 will not be computed until the middle of 1914. Hagen has continued his study of experimental proofs of the earth's rotation, using Atwood's machine (two unequal weights connected by a wire passing over a pulley), to study the eastward deviation of falling bodies. The top of a tower, being farther from the earth's center than the bottom, is carried eastward faster by the earth's rotation. A falling body retains this more rapid eastward motion, and strikes the floor to the east of a plumbline hung from its original position. With a fall of 75 ft., the observed deviation was 0.90 mm., agreeing with theory within one per cent. Woodward, discussing the theory of such experiments (*A. J.*, 651), concludes that in addition to the eastward deviation there should be a smaller one away from the equator, to the north in northern latitudes. (See also *Mathematics, supra.*)

Fabry and Buisson have shown that the abrupt termination of the solar spectrum toward the ultraviolet at about λ3000 is probably due to the absorption of the light beyond this limit by ozone in the upper layers of the earth's atmosphere (*C. R.*, CLVI, 782).

The great eruption of Mt. Katmai in Alaska (*A. Y. B.*, 1912, p. 612) filled the upper air with fine dust, which took months to settle, and spread all over the world. The effect of this upon climate has been discussed by Abbot and Fowle (*Smithson. Misc. Coll.*, LX, No. 29) and by Humphreys (*Jour. Franklin Inst.*, CLXXVI, 131). The amount of solar heat which directly reached the earth's surface was diminished about 20 per cent. by the volcanic haze. After allowance for the increased brightness of the sky, there remains a net loss of ten per cent. in the heat available to warm the earth. If such a change should be permanent, it would be enough to bring on a new glacial

period; but the dust soon settled, and the actual lowering of temperature amounted to only about half a degree C. All the most remarkable cold seasons since 1750 seem to be similarly related to great volcanic outbreaks. The relation between the "dry fog" of 1783 and the ensuing severe winter was noticed at the time by Franklin. (See also XXV, *Meteorology and Climatology.*)

The Planets.—Lau, discussing in detail the surface markings of Jupiter (*A. N.*, 4673), explains the white spots often seen as clouds covering the sites of eruptions of material from the heated interior. The eruptive products, after cooling down, drift off to the eastward, and form the conspicuous dark belts. Barnard, visually observing Phœbe, the faint outer satellite of Saturn, estimates it as of the fourteenth magnitude, much brighter than had previously been supposed (*A. N.*, 4561). Ristenpart discusses the observations of the occultation of a seventh magnitude star by Jupiter's third satellite, as seen from various stations in Chile. From the durations of occultation, ranging from 2m. 12s. to 4m. 34s., the positions of the observers, and the known rate of motion of the satellite, he concludes that the satellite is flattened at the poles, the equatorial diameter being 4,660 miles, and the polar 4,270, both considerably larger than the values derived from micrometric measures. The excellent series of observations of the satellite of Neptune at the U. S. Naval Observatory have been continued.

The discovery of new asteroids continues unabated, but they are often insufficiently observed. Cohn (*A. N.*, 4688) lists the elements of 21 of these little bodies, discovered between July, 1912, and July, 1913, for which trustworthy orbits could be computed, raising the whole number to 754. Five of these had been discovered and observed in previous years, one of them twice over, in 1907 and 1909, but the observations then secured were insufficient for the computation of an orbit. Five other planets, supposed to be new discoveries, were found to be identical with previously known asteroids which, owing to perturbations by the attraction of Jupiter, or to errors in the assumed orbital elements, were not in their predicted places. Bailey, from photometric observations, found the range of variability in the light of Eros to be from 0.5 to 0.9 magnitudes, and detected regular variations of smaller amount in the light of five other asteroids, the periods of variation, which are all short, being presumably identical with the times of rotation of these planets.

Comets.—The first comet to be discovered in 1913, called therefore Comet 1913a, was seen by Schaumasse at Nice on May 6. It was then almost at the point of its orbit nearest to the sun (perihelion), which it passed on May 15, at a distance of 1.45 times the radius of the earth's orbit. Its orbit is at least approximately parabolic, the inclination of its plane to that of the ecliptic being 28 deg., and the direction of motion retrograde, i.e., opposite to that of the earth and the other planets. By the end of August it was almost out of sight. Comet 1913b, discovered by Metcalf at South Hero, Vt., on September 1, appears to have also a nearly parabolic orbit, with perihelion passage on Sept. 14, at a distance of 1.36, and retrograde motion. Like the preceding, it was visible in a small telescope. Comet 1913c, discovered by Neujmin at Simeis, Russia, on Sept. 3, was at first reported as an asteroid, and presented a very peculiar appearance, having a sharp stellar nucleus of magnitude 11.5, and a very faint nebulosity on the following side. Its orbit is certainly elliptic, with a period of about 18 years, a perihelion distance of 1.54, and an inclination of 15°.

Comet 1913d, discovered by Delavan at La Plata, Argentina, on Sept. 26, was recognized at once as the return of Westphal's Comet of 1852. This comet was observed for six months in 1852-3 and showed a clearly elliptic orbit, the computed period being 61.7 years, with an uncertainty of less than a year. The actual period during the revolution now completed was 61.121 years. The perihelion distance is 1.25 times the earth's distance from the sun, and the aphelion

distance 30.0 times, very nearly that of Neptune. Owing to the high inclination of the orbit (41 deg.) and the position of the line of nodes, however, the comet is more than 16 units south of the plane of Neptune's orbit when at aphelion, and can never come anywhere near it, though it may approach within a distance of 0.5 of the earth, 0.2 of Mars, and 0.15 of Jupiter. At the present return, the comet passed perihelion on Nov. 17, 1913, and was placed, relatively to the earth, in a very favorable position for observation. In 1852, when conditions were about equally good, it was of magnitude 4.5 when brightest, easily visible to the naked eye, and had a tail about a degree in length.

Comet 1913e, discovered by Zinner at Bamberg on Oct. 23, proved to be a return of the third comet of 1900, whose period is 6.46 years. It was visible in a small telescope, but moved rapidly southward, and was soon lost to sight from northern observatories.

The Stars: Parallaxes.—Important series of parallax determinations have been published by Chase and Smith, of Yale, by Abetti, who observed at Heidelberg, and by Slocum, from photographs taken with the great Yerkes telescope. The Yale observers find that the fourth magnitude star Epsilon Eridani is one of our nearest neighbors in space, with a parallax of 0″.31, and a distance of 10 light-years, or about 700,000 times that of the sun. Slocum finds that the new star in Gemini, like that in Lacerta, is enormously distant, probably many hundred light-years.

Proper Motions.—Charlier, discussing the motions of the stars visible to the naked eye (*M. N.*, LXXIII, 486), concludes that the mean distance of the stars between the fifth and sixth magnitudes is 29,000,000 times that of the sun, or 440 light-years, and finds that the distribution of the real motions of the stars in space is more closely represented by the "ellipsoidal" hypothesis of Schwarzschild than by Kapteyn's hypothesis of two intermingling streams of stars. Dyson finds for the stars down to the tenth magnitude within nine degrees of the pole a mean distance of 1,200 light-years; more than 95 per cent. of these stars are brighter than the sun (*M. N.*, LXXIII. 334).

Radial Velocities.—Campbell gives the radial velocities of 915 stars, thus completing the publication of the extremely laborious and important work of the Lick Observatory on this subject up to date. Plummer, discussing the motions of the white stars, of spectral classes B and A, finds that their real motions are very nearly parallel to the plane of the Milky Way, and computes the distances and brightness of many stars (*M. N.*, LXXIII, 450, etc.).

Double Stars.—The discovery of new pairs proceeds apace. Aitken's last list raises the number discovered by him at the Lick Observatory to 2,600. One of these pairs has completed a revolution since its discovery, and Aitken computes an orbit from his own observations, the period, 12.1 years, being the shortest so far found, with two exceptions.

Spectroscopy.—Fowler has succeeded in producing in the laboratory, by passing a powerful disruptive discharge through a vacuum tube containing a mixture of hydrogen and helium, the series of lines observed by Pickering in 1896 in the spectrum of the star ζ Puppis, and supposed by him to be due to hydrogen under exceptional conditions of luminous excitation; and also two other series of lines (most of which lie far in the ultra-violet), one of which coincides with the "principal series" of hydrogen lines whose existence was predicted on theoretical grounds by Rydberg. The first line of this series is a conspicuous bright line in the spectrum of ζ Puppis and certain other stars (*M. N.*, LXXIII, 62). In a later paper Fowler shows that the strong line at wave-length 4,481, characteristic of the spark spectrum of magnesium, is also the first member of a similar series of lines. The important studies of the behavior of the lines of iron, titanium, etc., under varying conditions of temperature and pressure in the source of light have been continued at Mount Wilson, with very valuable results. Nicholson shows that most of the lines of unknown origin in the spec-

tra of the solar corona and of the gaseous nebulae can be accounted for theoretically by the electrical vibrations of very simply constituted atoms, and Bohr, employing the new theories of radiation, shows that the hydrogen series may be similarly explained.

The system of classifying stellar spectra which has been developed at the Harvard Observatory was adopted by the International Union for Solar Research for general use, pending the adoption of a definitive classification. According to this system, the six principal types of stellar spectra are denoted by the letters B, A, F, G, K and M, and intermediate classes by the "decimal notation;" for example, a spectrum half way between the B and A types is called B5A, or simply B5. Eberhard and Schwarzschild find that the H and K lines of calcium are reversed, (bright), in the spectra of Arcturus and some other stars of class K, which in this respect, as in some others, resemble the spectra of sun spots.

Stellar Temperatures.—Rosenberg, from the distribution of energy among the different wave lengths in the spectra of some 60 stars, deduces the effective temperatures of their surfaces, finding, like previous observers, a steady decrease in temperature from class B to class M. The range of his computed values, from 40,000 deg. for class B to 2,300 deg. for class M, is, however, much greater than that found by some earlier observers (*A. N.*, 4621).

Spectroscopic Binaries.—The rate of discovery of these interesting systems still far exceeds that at which the necessary observations for the computation of their orbits can be secured. Among those whose orbits have been computed may be noticed Ursae Majoris, with the unusually long period of 4.15 years, and RR Lyrae, with the very short period of 13 hours (see *infra*).

Belopolsky finds that in the spectrum of α Canum Venaticorum certain lines vary greatly in intensity, with a period of 5.5 days, while the rest are unaltered. The variable lines show periodic changes in radial velocity, while the others do not. The cause of these singular phenomena is not yet understood.

Photometry. — Parkhurst, in his *Yerkes Actinometry*, gives measurements of the brightness of some 600 stars within 17 deg. of the North Pole, made photographically, both on ordinary plates (that is, with violet light) and on isochromatic plates, using a color screen transmitting yellow and green light. The difference in the brightness of a star measured in these two ways gives an accurate measure of its color. The spectra of the stars were also photographed, and the relation between the "color index" just described and the class of spectrum determined, with results agreeing well with those of other observers. If two stars of spectra A and M appear equally bright to the eye, or on the isochromatic plates, the former will appear four times as bright as the other on the ordinary plates. (*Ap. J.*, XXXVI, 169).

Variable Stars.—One hundred and thirteen new variable stars whose changes in brightness have been confirmed by independent observations have received definitive names between June, 1912, and June, 1913. Much attention is being paid to the theory of stellar variation. In the case of the eclipsing variables, which are usually of constant brightness but lose light at regular intervals owing to the interposition of a fainter companion, the theory is in a very satisfactory state. Shapley, using the methods devised by Russell, has worked out the orbits of 87 such systems. His principal conclusions are: It is usually certain, and always probable, that the eclipsing companion has some light of its own. For the most accurately observed systems, there is definite evidence that the stars appear brighter at the centers of their disks than at the edges, as is the case with the sun. In many cases the two stars of a pair keep always the same faces toward one another, and are elongated into ellipsoids by their mutual attraction, the effect being greater the nearer they are together. The faint companion is often larger than its brighter primary, and, when its color is known, is also redder and presum-

ably colder, but nevertheless it is almost certainly much less dense. All but one of the 87 stars are less dense than the sun, the white stars, of spectra B and A, having usually densities from one-fifth to one-fiftieth that of the sun, while the yellow stars, of spectra F, G and K, fall into two groups, one about half as dense as the sun, and the other of extremely low density.

The Cepheid variables, which change regularly and continuously in brightness in a manner not explicable by eclipses, are still a great puzzle. It is known that they are very remote, are really of great brightness (several hundred times that of the sun), resemble the sun in spectrum, and are all spectroscopic binaries, the time of maximum brightness being always the same as that when the star is approaching us most rapidly, and the minimum coinciding with the most rapid recession. Kiess, studying the star RR Lyrae, which in its very short period of 13h. 37m., and other characteristics of its variation resembles the variable stars which occur in certain star clusters, finds it to be a spectroscopic binary with the typical Cepheid characteristics. Ludendorff has shown that the observed ranges in radial velocity and in light variation among these stars are very nearly proportional to one another. Luizet develops a theory of their variation, assuming that the principal star of each system is brighter on one side than on the other, and rotates, not uniformly, but so that the bright side always faces in the direction of the orbital motion. There remain, however, many unexplained difficulties.

Star Clusters and Nebulae.—Adams and Van Maanen find that nine of the brighter stars in the great cluster in Perseus are all approaching us at the unusually rapid rate of 43 km. per second. The proper motions of these stars are very small, and the distance of the cluster probably very great. Schwarzschild finds a similar community of radial velocity among the brighter stars of the Præsepe cluster in Cancer, which are receding from us at the rate of 36 km. per second. These stars have small but equal proper motions, and appear to be travelling in space in almost the same direction and at almost the same rate as the Hyades cluster, in which case their distance from us must be about 500 light-years.

Fath finds that the spectra of a number of globular star clusters are intermediate between those of Procyon and the sun; and that those of the Andromeda nebula and of some this, finding also bright lines in the solar type, which indicates that they are really vast clusters of stars resembling the sun. Wolf confirms this, finding also bright lines in the spectrum of the Andromeda nebula, and a faint line in the spectrum of the great nebula in Orion whose existence has been predicted theoretically by Nicholson.

Slipher finds that the spectrum of the faint streaky nebulosity in the Pleiades is an exact copy of that of the brighter stars of the cluster, which seems to prove that this nebula consists of some sort of dust or fog, and shines by reflected light. Hertzsprung strongly confirms this theory by measuring the brightness of this nebula at several points and finding that it is only from four to one per cent. as bright as a white screen illuminated by the light of the stars would be. He estimates the distance of the Pleiades as 300 light-years and shows that the total mass of the dust clouds need not exceed that of the sun. (*A. N.*, 4679.)

Fath finds that the spectrum of the light of several regions of the Milky Way is of the solar type, indicating that the multitude of very faint stars, from which most of the light comes, are yellow, though the brighter ones are well known to be white (*Ap. J.*, XXXVI, 362). Slipher, from four plates of the spectrum of the Andromeda nebula, finds that it is approaching us with the enormous radial velocity of 300 kilometres per second.

XXV. GEOLOGY, METEOROLOGY, AND GEOGRAPHY

GEOLOGY

DYNAMIC AND STRUCTURAL GEOLOGY

SIDNEY POWERS [1]

International Geological Congress.—The most important geological event of the year was the twelfth session of the International Geological Congress, which convened at Toronto, Aug. 7 to 14. The meeting was preceded and followed by excursions throughout Canada which are described on a subsequent page (see *International Geological Congress, infra*).

Dynamic Geology: Isostasy.—The physics of the earth's interior with regard to isostasy is being investigated in this country and in India, with results which confirm the views of Hayford and Bowie (*A. Y. B.*, 1911, p. 581; 1912, p. 605). Hayford (*Jour. of Geol.*, XX, 562-78) replies to a criticism by H. Lewis that there was an error in the computations of the depth and completeness of the isostatic compensation. Hayford shows that the observed deflection from the vertical at any station can be calculated from a degree of compensation for any assumed depth, the degree of compensation differing greatly for different stations at a certain depth. He also shows that his gravitative determinations agree with those of Lewis, although calculated by a different method. Hayford's method has been applied in India (Geol. Surv. India, Prof. Papers No. 12 and 13), where the depth of compensation is found to be greater than in the United States. The relationship between terrestrial gravity and observed earth movements of eastern America is discussed by J. W. Spencer (*Amer. Jour. Sci.*, XXXV, 561-73). The agreement between physiographic researches and Hayford and Bowie's geophysical determinations is such as to show the fallacy of the theory that postglacial deformation was due to the melting of ice caps. Spencer further shows that the recent changes of level of the land and sea at the continental shelves occurred in areas deficient in gravity. Recent deformation in the Great Lakes region is due to unequal sinking of zones resting on foundations of unequal rigidity.

Coal Formation.—The formation of the coal-beds in the Northern Appalachian basin and the nature of the rocks associated with these coal measures are discussed by J. J. Stevenson (Stechert & Co., 1913). The author concludes that the conditions of deposition recall those now observed on the Siberian Steppe and other river regions. There was an eastern and a western valley, in each of which was a longitudinal river. The main streams were sluggish and often interrupted. During high water the surface was covered broadly by a sheet of water, and the débris from different streams was mingled. Subsidence prevailed in the basin until the later stages. During the whole of the Pennsylvanian a great part of the basin was near sea level and apparently no portion of it was at any time more than 100 ft. below tide.

Faults.—The committee on the nomenclature of faults, appointed by the Geological Society of America, has issued a lengthy and comprehensive report, published in the *Proceedings* of the Society (XXIV, 163-86). W. M. Davis has treated the physiography of faults in a separate paper (*Bull. Geol. Soc. of Amer.*, XXIV, 187-216).

[1] The acknowledgments of the author are due to Prof. J. B. Woodworth for suggestions and criticism.

R. W. Richards and G. R. Mansfield describe (*Jour. of Geol.*, XX, 681-707) the Bannock overthrust in southeastern Idaho and northeastern Utah. The trace of this fault extends for about 270 miles in a direction a few degrees to the west of north, and the direction of thrust is a little to the north of east. The fault surface is deformed and erosion has cut deeply through the overthrust strata into the underlying rocks, making it difficult to trace the original horizontal displacement. The displacement has been estimated at over 35 miles. The youngest rocks involved in the faulting are early Cretaceous sandstones, and the trace of the fault is concealed by basal Eocene conglomerates. Hence, it is probable that the faulting occurred at the close of the Cretaceous. There are a number of thrust faults in the region north of the Bannock thrust, apparently in the same zone of crustal readjustment.

Diastrophism. — T. C. Chamberlin writes on "Diastrophism and the Formative Processes" (*ibid.*, XXI, 517, 577), discussing the elastico-rigid earth under the planetesimal hypothesis of its origin. Then he applies the principle to the diastrophic origin of the shelf-seas, discussing the characteristics of these seas and their relation to submarine life. He concludes that the traditional view "that the systematic sedimentations and the systematic evolutions of faunas of the higher order are to be assigned directly to vertical or epeirogenic movements of the earth's crust" should be abandoned.

Structural Geology.—The *Report of the State Geologist of Vermont* (1912) contains, among other contributions to the geology of the state, a general account of the geology of the Green Mountains by G. H. Perkins, the Director of the Survey. The Virginia Survey has issued a bulletin (No. 4) on the physiography and geology of the coastal plain province of the state, by W. B. Clark and B. L. Miller. Similarly, the Georgia State Survey has issued a report on the coastal plain of Georgia (Bull. 26) by O. Veatch and L. W. Stephenson, describing a series of sedimentaries aggregating over 4,500 ft. in thickness. The Wisconsin Survey has issued a bulletin (No. 25, 1912) on the sandstones of the Wisconsin coast of Lake Superior, by F. T. Thwaites, who describes two conformable groups of Upper Keweenawan sediments believed to have been deposited subaërially in a basin formed by the folding of earlier Keweenawan strata. The geology of south-central South Dakota is described by E. C. Perisho and S. S. Visher in a bulletin (No. 5, 1912) of the state Geological Survey.

The United States Geological Survey has issued the following folios of the geologic atlas of the country since the last issue of the YEAR BOOK: 183, Llano-Burnet, Texas; 184, Kenova, Kentucky - West Virginia - Ohio; 185, Murphysboro-Herrin, Illinois; 186, Asiphaha, Colorado; 187, Ellijay, Georgia - North Carolina - Tennessee; 188, Tallula-Springfield, Illinois; 189, Barnesboro-Patton, Pennsylvania; 190, Niagara, New York.

In the educational field, *Structural Geology*, by C. K. Leith (Holt, 1913), is a welcome contribution in a line which receives insufficient treatment in many American textbooks.

C. H. Clapp presents the results of several years of field work in a memoir on the geology of southern Vancouver Island (Can. Geol. Surv., Mem. 13, 1912). Recently new index fossils have been found on the island (Int. Geol. Cong. Guide Book No. 8, 280-341). A marked unconformity between the Carboniferous and Devonian strata in the Upper Mississippi Valley is described by C. R. Keyes (*Amer. Jour. Sci.*, XXV, 160-64). The geology of the Columbus Quadrangle, Ohio, is described in Bulletin 14 of the State Survey.

A geologic map of Canada has been prepared by the Canadian Geological Survey on a scale of 100 miles to one inch (1:6,336,000), giving the geology in greater detail than Willis' map of North America, because of its more limited area. A geologic map of Nova Scotia on a scale of 12 miles to one inch (1:760,320) accompanies Fernow's report on "Forest Conditions in Nova Scotia" (Commission on Conservation, Can., 1912), but this map should be used with the knowledge that practically all of what is mapped as Devonian is really Carboniferous. The geology of Nova Scotia is brought up to date by Guide Book No. 1

of the International Geological Congress, which is the most comprehensive treatment of the subject since Sir J. W. Dawson's *Acadian Geology* appeared.

Fossils have for the first time been found in the Huronian and are described by A. C. Lawson and C. D. Walcott from the Steeprock Lake district, Ontario (Can. Geol. Surv., Mem. 28, 1912). J. B. Woodworth describes a geological expedition to Brazil and Chile, 1908-9, the first of the Shaler memorial series (*Bull. Mus. Comp. Zool.*, Harvard Coll., 1912). The Permean glaciation of southern Brazil is discussed in detail. The geomorphology of south Brazil and the changes of level of the coast of southern Chile are also treated.

Alaska.—The Alaskan Division of the U. S. Geological Survey, under the direction of A. H. Brooks, has published a number of papers on geological reconnaissances and mineral resources during the year. The general geology of the Mt. McKinley region is treated by Brooks (U. S. G. S., Prof. Paper 70). Glaciation in northwestern Alaska is discussed by P. S. Smith (*Bull. Geol. Soc. Amer.*, XXIII, 563-70). L. M. Prindle describes the Fairbanks Quadrangle (U. S. G. S., Bull. 525), A. G. Maddren, the Koyukuk-Chandlar region (U. S. G. S., Bull. 532), and F. H. Moffit, the Nome and Grand Central Quadrangles (U. S. G. S., Bull. 533). Glacial deposits of the continental type in Alaska are described by R. S. Tarr and L. Martin (*Jour. of Geol.*, XXI, 289-300). The presence of glaciers is found to be related to topography, and the deposition of loess and eolian silt to glacial outwash and wind work. The coastal glaciers of Prince William Sound and Kenai Peninsula are treated by U. S. Grant and D. F. Higgins (U. S. G. S., Bull. 526). In the Bulletins of the U. S. Geological Survey the following regions are described: the Yentna district by S. R. Capps (No. 534), the Rampart Quadrangle by H. M. Eakin (No. 535), the Circle Quadrangle by L. M. Prindle (No. 538).

Philippine Islands.—W. D. Smith, Chief of the Division of Mines of the Science Bureau, writes on the geology of Luzon (*Jour. of Geol.*, XXI, 29-61). This forms a valuable contribution on Philippine Cordilleran geology. The formations exposed are Tertiary or younger, with the possible exception of some igneous rocks, for the reason that the older formations are deeply buried under the continental shelf. The mineral resources of the islands are treated in a publication of the Science Bureau, Manila.

Stratigraphy.—Among the most important works on stratigraphy is C. D. Walcott's monograph on Cambrian Brachiopoda (U. S. G. S., Monogr. 51) in two volumes. The first monograph of the Brazilian Geological Service is devoted to a treatise by J. M. Clarke on the Devonian of southern Brazil and the Falkland Islands. The illustrations from this monograph are reprinted in the *Ninth Report of the Director of the Science Division, New York State Museum.* In the same report Clarke traces the origin of the Gulf of St. Lawrence (pp. 132-37). Bailey Willis has published an "Index to the Stratigraphy of North America" (U. S. G. S., Prof. Paper 71) in coöperation with the Geological Survey of Canada and the Instituto Geológico de México. This index is accompanied by a geologic map of North America. It comprises discussions on stratigraphy, citations of fossils, and views on correlations. The Lower Silurian shales of the Mohawk Valley are described by R. Rudemann (N. Y. State Mus., Bull. 162). A. W. Grabau contributes a textbook on *Principles of Stratigraphy* (Seiler & Co., 1913). C. A. Hartnagel has published a classification to the geologic formations of New York State (State Museum Handbook No. 19). The Geological Survey of Maryland has issued a monograph on the Lower Cretaceous of that state (1912). The age of the Judith River formation has been placed by A. C. Peale (*Jour. of Geol.*, XX, pp. 738-58) as equivalent to the Lance formation and above the Fox Hills formation, which is in turn underlain by the Pierre shales and Niobrara formation, themselves the equivalent of the Belly River series. L. G. Westgate and E. B. Branson describe the later Cenozoic history of the Wind River Mountains, Wyoming (*ibid.*, XXI, 142-59).

Glacial Geology.—The Pleistocene geology of New York State was the

subject of the presidential address to the Geological Society of America at the last meeting. In this address Professor Fairchild discusses the retreat of the Wisconsin glacier from the state and the more important glacial deposits (*Bull. Geol. Soc. Amer.*, XXIV, 133-62). The glacial and postglacial lakes of the Great Lakes region are treated by F. B. Taylor (*Report of the Smithsonian Institution*, 1912, 291-327), with a series of maps of the district. The same writer has also contributed a paper on the moraine systems of southwestern Ontario (*Trans. Can. Inst.*, 1913). Local glaciation in New England has long been a matter of doubt, but J. W. Goldthwait now shows that local glaciers existed near Mt. Washington, N. H., prior to the advance of the continental ice sheet over the White Mountains (*Amer. Jour. Sci.*, XXXV, 1-18). These glaciers were short, terminating within a mile or two of the snow fields. Dr. Goldthwait suggests that the local glaciers developed during one of the early periods, possibly the Kansan epoch, and that the Wisconsin glaciation was without valley glaciers. A new glacial center south of Hudson Bay has been found by J. B. Tyrrell (Int. Geol. Cong., advance copy), and the glacier has been named Patrician Glacier. This glacier advanced northward into Hudson Bay and then retreated, the retreat being followed by the deposition of a great thickness of marine sediments in the bottom of Hudson Bay, the land then standing at a lower level than at present. Subsequently the Labradorean glacier advanced, plowing its way through the sediments, and finally stopping near the Patrician center. In the Glacier National Park, Montana, W. C. Alden (*Bull. Geol. Soc. Amer.*, XXIII, 687-708) recognizes pre-Wisconsin glacial drift from valley glaciers. Similarly, in the Telluride Quadrangle, Colorado, in a part of the San Juan Mountains, A. D. Hole (*Jour. of Geol.*, XX, 605-37) finds two periods of glaciation separated by a long interval of time. The earlier glaciation was the more extensive and the thickness of the ice was over 1,500 ft. J. W. Spencer has published an *Outline of the Evolution of the Falls of Niagara* (Washington, 1913). Variations in modern glaciers are tabulated by H. F. Reid (*Jour. of Geol.*, XXI, 422-26). The extent of the Cordilleran ice sheet in northern Idaho is discussed by C. A. Stewart (*ibid.*, 427-30).

Other Contributions. — The *United States of America* by E. Blackwelder (*Handbuch der Regionalen Geologie*, edited by G. Steinmann, Heidelberg, 1912), is the first of a projected series of volumes dealing with the Western Hemisphere. The complete series is planned to cover the whole world.

The U. S. Geological Survey has issued several articles, of a geologic and economic nature, on: the Helena mining region, Montana, by A. Knopf (Bull. 527); Lehmi County, Idaho, by J. B. Umpelby (Bull. 528); the Park City district, Utah, by J. M. Boutwell (Prof. Paper 77); the Philipsberg Quadrangle, Montana, by F. C. Calkins and W. H. Emmons (Prof. Paper 78); the San Francisco and adjacent districts, Utah, by B. S. Butler (Prof. Paper 80).

Bibliography.—J. M. Nickles gives a *Bibliography of North American Geology for 1911* in U. S. G. S. Bull. 524 (1912). The Geological Survey of Canada has issued a list of its publications in two reports, *Catalogue of Publications of the Geological Survey of Canada* (No. 1073, 1909), and *Supplementary List of Publications of the Geological Survey of Canada* (No. 1217, 1912).

ECONOMIC GEOLOGY

ADOLPH KNOPF

Secondary Enrichment.—The principal feature of note in the progress of economic geology in America during 1913 has been the large number of excellent articles on the subject of sulphide or secondary enrichment. A record of a laboratory investigation of the chemical reactions involved in the downward enrichment of silver ores by H. C. Cooke (*Jour. Geol.*, XXI, 1) affords a notable example of the increasing tendency to apply the laws of physical chemistry to the problems of economic geology. Chase Palmer and E. S. Bastin have investigated the precipitation of gold and silver from solution by the action of metallic sulphides and arsenides (*Economic Geol.*, VIII, 140-70). Al-

though these precipitative reactions have long been known, they are now being studied quantitatively and with special reference to their bearing on the problems of sulphide enrichment. Bastin has also contributed a paper in which metasomatic replacement (a term applied to the transformation of one mineral into another of different chemical composition, effected by concomitant solution and precipitation) is shown to be an important process in the downward sulphide enrichment of certain Colorado and Montana silver veins (*ibid.*, 51-63). It is believed that no change in volume is involved in the replacement; the process thus appears to violate the stoichiometric laws of chemistry and it becomes a problem for future research to explain this apparent anomaly.

Copper Ores.—The processes whereby mineralized porphyry at Ely, Nev., one of the most important of the so-called porphyry copper ore bodies, was sufficiently enriched by the deposition of copper brought down by the surface waters and precipitated upon the lean sulphides of the primary mineralization, have received philosophic exposition by A. C. Spencer (*Econ. Geol.*, VIII, No. 7). Among the more signal features of this study is the recognition that the Stokes equation, which is commonly accepted as expressing chemically the change of pyrite to chalcocite, is incompatible with the actual volume relations observable. The conversion of pyrite to chalcocite, according to the Stokes equation, calls for an expansion in volume of from 54 to 75 per cent.; actually, however, the reaction seems to proceed according to the law of equal volumes, that is, "metasomatically." As in the silver enrichment described by Bastin, so here the term metasomatism is customarily employed to denote a change effected through chemical processes of whose real nature we know little. Spencer, however, makes the suggestion that the main reaction summarized by Stokes' equation is accompanied by a concurrent reaction that provides the excess volume demanded by the chalcocitization of the pyrite.

The effectiveness of the methods of metallographic research in facilitating the study of the enriched copper ores has been strikingly demonstrated by the work of Graton and Murdoch (*Bull. Am. Inst. Mining Engineers*, No. 77, 1913). This investigation was commenced primarily (1) to ascertain the mode of occurrence of the copper in cupriferous pyrite, (2) to discover the relation of chalcopyrite to pyrite in pyritic ore bodies, and (3) to arrive at criteria for distinguishing primary and secondary copper ore. Although the present paper is mainly a report of progress, it contains a number of important empirical generalizations, which are thought to be supported by sufficient data already to rank as valid inductions. Of interest is the establishment of a criterion whereby it is believed primary chalcocite can be distinguished from secondary chalcocite; until very recently chalcocite, which now furnishes more than one-half of the world's supply of copper, was considered to be secondary in all its occurrences. The practical importance of this work is so great that a number of the larger copper mining companies of the United States have recently financed a geological commission for the study of the problems connected with the downward sulphide enrichment of copper. The investigation has been put in charge of Professor Graton.

The paper of Reno H. Sales (*ibid.*, No. 80) is a notable contribution to the genesis of the ore deposits at Butte, Mont. Mr. Sales, who, as chief of the geological corps of the Amalgamated Copper Co., has had unrivaled opportunity to study these deposits, has put forth several new conceptions, little short of revolutionary. He believes that only the so-called sooty chalcocite at Butte, which is essentially restricted to a shallow zone, is of secondary origin, and that the massive steely chalcocite persisting down to the greatest depths yet attained is of primary origin. As Butte has long been cited as a striking, though, it must be confessed, somewhat disconcerting example of the depth to which secondary enrichment may extend, it will at once be realized how subversive of accepted belief this conception is. The different vein systems are shown to have received their metalliferous filling during a single epoch of mineralization, and the manganese-silver

veins, whose relation to the copper veins has not hitherto been satisfactorily explained, are clearly demonstrated to be genetically coeval with the copper veins and to be conected with them by gradual transitions along the strike.

Zinc Ores.—The report on the "Geology and Ore Deposits of the San Francisco and Adjacent Districts, Utah," by B. S. Butler (U. S. G. S., Prof. Paper 80, 1913), contains a notable study of sulphide enrichment. Most important is the establishment of the fact that wurtzite, the hexagonal sulphide of zinc, is a common product of the action of downward-moving acid solutions on the primary sulphides of ore bodies, in conformity with the result of recent researches at the Carnegie Geophysical Laboratory.

Silver-Lead Ores.—The genetically important type of tourmaliniferous silver-lead ores has been described from Montana by Adolph Knopf (U. S. G. S. Bull. 527, 1913); the derivation of these ores from an igneous source seems unusually clearly indicated by the field evidence, leading to the conclusion that they represent a final differentiation product of the intrusive quartz monzonite magma.

Hot Springs and Magmatic Waters.—Special interest attaches to the paper on "The Hot Springs and Mineral Deposits of Wagon Wheel Gap, Colo.," by W. H. Emmons and E. S. Larsen (*Econ. Geol.*, VIII, 235-46), as affording an additional example of the scant number of hot springs at which the metalliferous vein formation is now in progress. The demonstration by A. L. Day and E. S. Shepard (*Bull. Geol. Soc. of America*, XXIV, No. 3) that the molten lava of Kilauea contains large quantities of magmatic water and the actual collection of this water and its associated gases uncontaminated by combustion products and atmospheric gases, a feat never before accomplished at any volcanic center, have been matters of extreme interest to economic geologists, for in recent years the origin of ore deposits has been increasingly referred to the agency of magmatic waters.

Coal Deposits.—During August, the Twelfth International Geological Congress held its sessions at Toronto, Can. This meeting was signalized by the preparation of an inventory of the coal resources of the world. The data for the United States were assembled by M. R. Campbell, who estimates that the original reserves of coal aggregated 3,225,394 million metric tons, of which 11,220 million metric tons have been exhausted. For Alaska, Brooks and Martin estimate a reserve of 19,593 million metric tons.

The closing installment of John J. Stevenson's exhaustive investigation on "The Formation of Coal Beds" made its appearance early in the year (*Proc. Am. Philos. Soc.*, LII, 31-162). The conclusion is reached that the coal beds and the associated rocks are of land origin, and that the coal beds in all essential features bear remarkable resemblance to peat deposits, some to the treeless moor, but most to the Waldmoor.

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Coal Resources of the World. (Toronto, Can., Morang & Co., Ltd.)—An inquiry made on the initiative of the Executive Committee of the XII International Geological Congress, Canada, 1913.

Emmons, S. F.—*Ore Deposits.* (New York, American Institute of Mining Engineers.)—A compilation of contributions to the science of ore deposits from the *Transactions* of the Institute with a critical introduction and synopsis. A highly useful feature is a bibliography of the science of ore deposits by J. D. Irving, H. D. Smith, and H. G. Ferguson.

Emmons, W. H.—*The Enrichment of Sulphide Ores.* (U. S. Geological Survey, Bull. 529, 1913.)—A comprehensive exposition of the processes of enrichment and their application to a large number of mining districts.

Lindgren, Waldemar.—*Mineral Deposits.* (New York, McGraw-Hill Book Co., 1913.)—A judicious summary of existing scientific knowledge of mineral deposits, exclusive of the fuels and structural materials. The treatment of the subject is consistently from the genetic point of view.

MINERALOGY AND PETROGRAPHY

Charles Palache

Mineralogy.—Lindgren's book on *Mineral Deposits* is a notable contribution to the study of minerals. The purpose is to present a consistent genetic classification of mineral deposits with illustrations of each type, drawn largely from the United States. The scheme departs most widely from

previous similar works in ignoring the conventional division of ore deposits into metallic and non-metallic groups. While geologists will not all agree with Lindgren's interpretation of many mineral deposits or with all the units of his classification, there can be few who will not recognize the breadth of his view and the very great value of his uniform method of treatment.

Crystallography. — The appearance of the first volume of Goldschmidt's *Atlas der Krystallformen* is of international importance. This work will present, in six volumes of plates, reproductions of all published figures of crystals of all minerals, and will comprise in addition as many volumes giving the source and history of each figure. This sumptuous work fitly completes the monumental labor of the writer in compiling the whole literature of mineral crystallography in successive publications, first the *Index of Forms*, then the *Tables of Angles*, and now the *Figures of Crystals* of all crystallized minerals.

Petrography. — The completion of Professor Iddings' work on *Igneous Rocks* marks a step forward in the science. This second volume is devoted to a description of the igneous rocks on the basis of a combination of the older qualitative with the newer American quantitative classification. The main advance is in the description of geographical distribution, which is taken up for each country on the basis of petrographic provinces and without full local description. No attempt is made, however, to give any idea of quantitative distribution. The bibliography is very extensive and will be very welcome to students in this field.

The introduction of the quantitative element into petrology is notable in the recent American literature. Winchell (*Jour. Geol.*, XXI, 208) proposes an improvement on the widely used tabular scheme of classification of the igneous rocks, based on Rosenbusch's work, which is two-dimensional, involving as coördinates the mineral composition and geological conditions of formation. By an ingenious arrangement of transparent superposed sheets of paper printed in different colors, a third coördinate is added to show chemical variations. While not truly quantitative, this three-dimensional scheme admits of a much more complete visual presentation of the complex variations of rock magmas than we have had before.

Lincoln (*Econ. Geol.*, VIII, 551) proposes to define more accurately the generally accepted rock names by introducing a scheme of percentage composition of the mineral constituents. These are divided into leucocratic (quartz, feldspars, and feldspathoids) and melanocratic (ferromagnesian minerals and ores), and a three-fold division according to relative amounts of these two groups is applied three times, yielding types in which the presence of as little as four per cent. of one mineral may affect the classification. The scheme appears practical, and as a further contribution to its application the same author (*ibid.*, VIII, 120) has elaborated the methods of determining the percentage mineralogical composition of rocks by the measurement of thin sections.

Metamorphism. — The problems of dynamic and igneous metamorphism offer an attractive field for speculation, but as yet have proved for the most part unsolvable. Uglow (*ibid.*, VIII, 19, 215) has assembled some of the more striking evidence relating to the formation of silicate zones in limestones at igneous contacts. His summary of conclusions favors the view that the silicates are formed almost wholly from material originally present in the limestones. His interpretation of evidence, however, is not always free from bias, and an opposite conclusion, namely, that large amounts of material, such as iron and silica, have been transferred to the limestone from the intrusive magma, appears in many cases inevitable. Bastin (*Jour. Geol.*, XXI, 193) discusses the same problem of transfer of material in dynamic metamorphism, maintaining a position previously taken that complete recrystallization of sediments may occur without sensible change of their chemical character, and that therefore it is possible to establish a chemical criterion for the origin of crystalline metamorphics.

The general physico-chemical principles underlying metamorphic pro-

cesses are discussed by Johnston and Niggli (*ibid.*, XXI, 481) in a paper which emphasizes very strongly the complexity of the group of problems involved, the paucity of our knowledge of the actual physical data, and the great difficulty of reaching, with our present means, any final conclusions as to process or product.

INTERNATIONAL GEOLOGICAL CONGRESS

J. B. Woodworth

The International Geological Congress, the first session of which was held in Europe in 1881, has ever since maintained an official character under the auspices and with the financial support of the government of the country in which the convention is held. Its delegates are appointees of the several governments having official geological bureaus, together with those persons delegated by like institutions or universities which may be invited to send delegates. Thrice the congress has met in North America: in the United States, at Washington, in 1891; in Mexico, at the capital, in 1906; and in Canada, at Toronto, in 1913.

The twelfth session of the Congress convened in the halls of the University of Toronto on Aug. 7 for its one-week session under the Presidency of Prof. F. D. Adams of McGill University, and under the patronage of the Governor-General, H. R. H. the Duke of Connaught, Prime Minister Borden, and other officials of the Dominion, and with the indispensable aid of the staff of the Geological Survey of Canada.

The work of the Congress covered, as usual, the week devoted to the reading of papers, discussions, and the passing of resolutions concerning international coöperation, and geological excursions conducted both before and after the meeting.

The most important item at the meeting was the presentation of the report of the committee on the world's known coal supply; this report is available in a printed document with an atlas of geological maps of the several workable coal fields (see *Economic Geology, supra*, and XX, *Coal, Coke, and Petroleum*). Two subjects assigned for discussion at this session, Pre-Cambrian geology and the evidences of interglacial epochs and climatic cycles, were considered in papers by A. C. Lawson, W. D. H. Collins, J. J. Sederholm, on the Pre-Cambrian; and by W. Wolff, W. von Lozinski, M. Manson, and G. W. Lampugh, on the interglacial question, respectively. A diversity of opinion still exists as to the identity and best method of naming and classifying the Pre-Cambrian. The verity of the subdivision of the Glacial Period into epochs of glaciation and non-glaciation appears to be unquestionable in the large continental areas of northern Europe and North America. On the cause of glacial periods there is as yet no agreement.

Another series of papers dealt with igneous rocks and their origin. Such were those read by R. A. Daly on "Sills and Laccoliths Illustrating Petrogenesis"; by H. S. Washington on "Volcanic Cycles in Sardinia"; and by A. Harker on "Fractional Crystallization, the Prime Factor in the Differentiation of Rock-magmas." The same subject was presented from quite a different point of view by W. H. Hobbs in a paper entitled "Variations in Composition of Pelitic Sediments in Relation to Magmatic Differentiation." Metamorphism was touched upon in a paper by J. J. Sederholm "On Regional Granitization."

A few papers relating to ore deposits of interest to mining geologists were also presented; notably those by J. F. Kemp on "Influence of Depth on Character of Metalliferous Deposits," and that by W. H. Emmons on "The Mineral Composition of Primary Ore as a Factor Determining the Vertical Range of Metals Deposited by Secondary Processes." Paleography received attention in a paper by C. Scheuchert on "The Delimitation of the Geologic Period Illustrated by the Paleography of North America."

For the student of Canadian geology and mining districts, the most important result of the Congress is to be found in the *Guide Books* prepared by members of the Geological Survey for the immediate use of those who attended the numerous field excursions, which covered the important mining districts from coast to coast. There

are ten of these books, illustrated with sections and maps, many of them specially drawn from heretofore unpublished field researches, giving in condensed form a summary of the present state of knowledge concerning the geology of Canada from the Maritime Provinces to the Pacific Coast, not excluding the Yukon and other districts in the far Northwest. The titles of the different volumes are as follows:

I. Eastern Quebec and the Maritime Provinces.
II. Haliburton—Bancroft Area of Central Ontario; Asbestos Deposits of the Province of Quebec; Mineral Deposits near Kingston, Ont.
III. Morin Anorthosite Area; Monteregian Hills; Mineral Deposits in the Ottawa District; Pleistocene-Montreal, Covey Hill and Ottawa; Ordovician—Montreal and Ottawa.
IV. Niagara and Iroquois Beach; Paleontology of the Guelph, Onondaga and Hamilton Formations in Southwestern Ontario; Paleozoic Section at Hamilton.
V. Silurian Section at the Forks of Credit River; Ordovician Section on Credit River near Streetville; Muskoka Lakes; Clay Deposits and Works near Toronto; Madoc Area; Algonquin Beach, Glacial Phenomena, and Lowville Limestone in Lake Simcoe District; Geology of Selected Areas on Lakes Huron and Erie in the Province of Ontario.
VI. Toronto and Vicinity; Moraines North of Toronto.
VII. Sudbury—Cobalt—Porcupine.
VIII. Transcontinental Excursion—Toronto to Victoria and Return, *via* C. P. R. and C. N. R.
IX. Transcontinental Excursion—Toronto to Victoria and Return, *via* C. P. R., G. T. P. and N. T. R.
X. Yukon and Malaspina; Prince Rupert and Skeena River.

EARTHQUAKES AND VOLCANOES

HARRY FIELDING REID

Earthquakes.—The year opened with a fairly strong shock in the northwestern part of South Carolina, felt over an area of 30,000 or 40,000 sq. miles, including parts of Georgia, North Carolina, and possibly Virginia. In Union County, S. C., furniture was displaced, chimneys were thrown down, and cracks were made in a few stone and brick buildings. The shock occurred at 1.27 p.m. on Jan 1. It had been preceded on the afternoon of Dec. 7, 1912, by a slight shock in the same region.

On April 28 a sharp shock occurred along the St. Lawrence Valley bordering the state of New York. It was felt over all the northern part of the state, north of the Mohawk Valley, over a large area in Ontario and a small part of Vermont. The area over which it was sensible was probably more than 45,000 sq. miles.

On Oct. 1, at 11.25 p.m., a very strong disturbance occurred in the province of Los Santos, Panama. In the town of Los Santos the cathedral and the Governor's Palace were wrecked and other buildings damaged. The shock was strongly felt along the Canal Zone and a few cracks were made in concrete buildings in the town of Panama, about 120 miles northwest of the center. It was about as strong in the province of Chiriqui, about the same distance to the northwest. Some fear was felt for the Canal, but an examination showed that the locks had not been injured. Three hours after the shock the Central and South American cables broke 150 miles north of Panama; the relation of this incident to the earthquake is not clear, unless the time is in error. Twenty-six tremors were reported at Los Santos during the night of Oct. 1. Later shocks at the same place, on Oct. 4, 6, 11, 23, and Nov. 13 were felt at Panama; they did no damage, though they caused some anxiety. The seismograph at Ancon recorded a slight preliminary shock (unfelt) at 1.40 p.m. on Oct. 1, and 11 others were recorded within 16 hours. The heavy shock threw the markers off the recording drum. Thirty-one shocks, most of them not felt, had been registered by Oct. 14.

Many light shocks continually occur in the Philippine Islands. At Sorsogon, southeastern Luzon, a severe shock occurred on Nov. 8, 1912, which overthrew a number of stone walls in the town. It seems to have been the culmination of disturbances which lasted from Nov. 5, 1912, to the end of December. An extraordinarily violent earthquake occurred under the sea south of Mindanao on March 14. It was very destructive in some of the small islands in that

region and did some damage in southern Mindanao.

A moderate shock was felt on the St. Lawrence River near the mouth of the Saguenay on the evening of Oct. 23, 1912. At 5.15 a.m. on Dec. 11, 1912, a moderate shock was felt from Augusta, Me., to beyond Fredericton, N. B., and was sensible over an area of 15,000 to 20,000 sq. miles. A very light shock occurred in southern Rhode Island upon Nov. 3. A series of trifling shocks were felt in Atlantic City, N. J., on Nov. 6, 1912. On Oct. 22, at 8.15 p.m., a light shock was felt between Dublin and Macon, Ga., over an area of about 1,500 sq. miles. Another light shock was recorded at midnight on March 13 in Gordon County, Ga. A sharp, but very local, shock was felt at Knoxville, Tenn., at 4.50 p.m. on March 28; it was strong enough to throw bricks from some chimneys, to throw pictures from the wall, and to overturn some bookcases, but it was felt only over an area of 2,000 sq. miles. Another light shock was felt at 1 a.m. on May 2. On April 17, at 11.30 a.m., a similar shock had its center in Madisonville, Tenn., about 30 miles southwest of Knoxville. Humboldt, Tenn., felt a slight shock on June 9.

In southern California slight shocks were felt at Oxnard, Dec. 14, 1912, at Santiago and Lakeside on Feb. 14, at Riverside on March 10, at San Bernardino on April 13, and at Los Angeles on Oct. 21. A number of light shocks were felt at Mount Hamilton on Oct. 20 and 24 and Nov. 16, 1912. The disturbance of Oct. 24, 1912, occurred between seven and eight p.m. and consisted of three shocks, two of which were felt also at Santa Clara, Stanford University, and Santa Cruz. A light shock was felt at Ukiah on the evening of Aug. 20. A light shock occurred in the neighborhood of San Francisco Oct. 25, 1913. In the northwest, three light shocks were reported from Seattle on the evening of Nov. 24, 1912. A shock was also reported from Vancouver, B. C., three days earlier, in the afternoon. A light shock was felt at Medford, Ore., March 15, at 12.40 p.m., and another at Roseburg, 60 miles to the northwest, at 6.30 the same evening. Two sharp shocks were reported a little after 8 o'clock on July 29 over an area of about 1,500 sq, miles, lying between Tacoma and Mount Rainier. A shock was felt over the southeastern part of Idaho and the northeastern part of Utah at 1.25 a.m. on April 12. It was central over Swan Lake, Idaho, and was felt over an area of 8,000 sq. miles; a second light shock came 10 minutes later.

Seward, Alaska, reported a slight shock on the evening of Nov. 6, 1912; its origin was probably submarine and some distance away. A similar light shock was felt at Sitka at 4 p.m. on Nov. 21, 1912.

A series of moderate shocks were reported from the West Indies: from Santiago de Cuba on the evening of Decc. 20, 1912, and again the next morning; from Vieques, P. R., at 9.05 a.m. on June 21; and from St. Thomas and the neighboring islands early on July 24. Martinique experienced light shocks on the morning of Dec. 22, 1912, at mid-day on March 22, and very early on June 18; the last shock was reported as severe, but no damage was done.

A very severe disturbance shook the central states of Mexico at 7.19 a.m. on Nov. 19, 1912. It seems to have been felt over an area of about 200,000 sq. miles, from the state of Durango to the state of Guerrero; it was strongest to the north and northwest of Mexico City and caused considerable damage. Guadalajara suffered a light shock on Dec. 2, 1912, and the state of Pueblo, about 100 miles east of Mexico City, on Feb. 21. Destructive shocks did much damage in the province of Santa Rosa, Guatemala, on the morning of March 8. Cuilapa seems to have been the center of the disturbance; buildings were overthrown and 32 school children are reported to have been killed. Light shocks were felt near Trujillo, Spanish Honduras, on April 13 and May 2, 1913. Strong shocks were reported from Masaye, Nicaragua, on Oct. 17. A strong shock was felt throughout Ecuador at 9.40 p.m. on Feb. 22 and did much damage in the province of Loja and Canar; lighter shocks followed on Feb. 26 and on March 1 and 2. A destructive shock destroyed the town of Caraveli, Peru, on Aug. 6, and much damage was done by an

earthquake in the department of Apurimac on Nov. 7.

A moderate shock was felt at Honolulu and on the neighboring islands at 5.45 a.m. on Oct. 13, 1912; it was reported that the lava was rising rapidly in the crater of Kilauea, but this report seems to have been erroneous. A light shock was felt at Hilo and vicinity on May 18.

Volcanoes.—During the summer of 1913, vessels plying about the Aleutian Islands reported smoke and ashes and acid fumes in the air, but it is not clear from what volcano they issued; the continual fogs in that region make it often impossible to see the volcanoes. On Jan. 20 the volcano Colima in southwest Mexico burst into violent eruption; great quantities of ashes were ejected, but very little lava flowed out. Ashes from this eruption fell as far away as Guadalajara, 100 miles distant from Mount Colima; near the mountain they were several feet deep.

About two years ago an observatory, under the direction of Prof. T. A. Jaggar, of the Massachusetts Institute of Technology, was built on the volcano of Kilauea. Observations on volcanic and seismic phenomena are carried on steadily. The boiling lava in the crater is subject to great fluctuations of level. In June and July, 1912, the lava rose and was extremely active; many so-called "fountains" threw the liquid lava to heights of 20 or 30 ft. above the surface of the lava lake. There was another slight rise from December, 1912, to February, 1913, since which date the level of the lava lake has sunk very low. Day has discovered water vapor in the gases issuing from the crator, the existence of which had heretofore been denied (see *Economic Geology, supra*); and Perret has discovered evidence of former explosive outbursts, though the activity of Kilauea has been supposed to be confined to a simple outpouring of lava.

METEOROLOGY AND CLIMATOLOGY

ROBERT DEC. WARD

Solar Radiation.—The most important meteorological results of the work of the Astrophysical Observatory of the Smithsonian Institution are the determination of the value of the solar constant, which is now given as 1.932 cal. per sq. cm. per minute on the basis of 696 series of observations (1902-12); and the proof of the sun's variability, occurring irregularly in periods of a week or 10 days (*Annals Astrophys. Obsy. Smithson. Instn.*, III, 1913). The eruption of Mt. Katmai, in June, 1912, resulted in a series of phenomena, the investigation of which contributed notably to the meteorological literature of the year. H. H. Kimball has studied the effects of the volcanic dust upon solar-radiation intensities and sky-light polarization (*Bull. Mt. Weather Obsy.*, V, Pt. 5, 1913). The haze caused a marked decrease in atmospheric transparency (*Month. Weather Rev.*, XLI, 1913). C. G. Abbot and F. E. Fowle have presented evidence that the dust layer affected terrestrial temperatures, especially of high stations, and find a remarkable correspondence between the departures of the mean maximum temperatures for certain stations in the United States and the sunspot and solar radiation curves (*Smithson. Misc. Coll.*, LX, No. 29, 1913). Such periods of haze, produced by volcanic eruptions in the past, may have had important climatic consequences (*Nat. Geogr. Mag.*, XXIV, 1913). Following the same lines, W. J. Humphreys (*Bull. Mt. Weather Obsy.*, VI, Pt. 1, 1913) concludes that volcanic dust must have been a factor, possibly a very important one, in the production of many, perhaps all, past climatic changes. (See also XXIV, *Astronomy.*)

Diurnal Variation of the Barometer.—Professor Humphreys has reviewed the suggested causes of the diurnal variation of the barometer, and concludes that the forenoon maximum and afternoon minimum are forced, while the evening maximum and morning minimum are caused by the twelve-hour free vibration of the atmosphere in response to the combined influence of both the forced disturbances (*ibid.*, V, Pt. 2, 1912).

Clouds and Fog.—Professor Humphreys has also considered the violent

uprushes in cumulus clouds, and believes that most of the electrical energy of thunderstorms comes from the latent heat of condensation (*ibid.*, Pt. 4, 1913). Andrew H. Palmer has discussed the relation of atmospheric humidity to haze, fog, and visibility at Blue Hill Observatory (Mass.). The conditions for observation being unusually good and the record being a long one, the results are of considerable interest (*ibid.*).

Free Air.—The free-air data obtained at the Mt. Weather Observatory have been regularly tabulated and discussed by W. R. Blair (*ibid.*, Pt. 3, 1912; Pt. 4, 1912). F. H. Bigelow has contributed two papers on the general causes of the isothermal layer (*Amer. Journ. Sci.*, XXXIV, 1912; XXXV, 1913).

Lightning and Forest Fires.—A pioneer investigation for the United States is the statistical study of the effect of lightning strokes in starting forest fires, by Fred. G. Plummer (U. S. Forest Service Bull. 111, 1912). The same author has also considered (U. S. Forest Service Bull. 117) the meteorological relations of forest fires, "dark days," dry fog, Indian summer, etc.

Hurricanes. — An important monograph on the hurricanes of the West Indies, by O. L. Fassig, brings together the essential facts which are already known, and adds to our knowledge by bringing the discussion down to date. The author believes that the origin of these storms is to be sought in the general movements of the atmosphere (U. S. Weather Bureau Bull. 10, 1913). The publication of an English translation of J. W. Sandström's atmospheric studies may be noted (*Bull. Mt. Weather Obsy.*, V, Pt. 2).

Changes of Climate. — Ellsworth Huntington believes that the former larger population and higher civilization in the tropical forests of Yucatan may be explained by a shifting of the borders of the climatic zones (*Bull. Amer. Geogr. Soc.*, XLIV, 1913). He has also further considered past climatic variations in North America and their possible relations to history (*Geogr. Journ.*, XL, 1912; *Amer. Hist. Rev.*, XVIII, 1913). Junius Henderson and Wilfred W. Robbins conclude that various lines of evidence point to a progressive desiccation in the Rio Grande Valley of New Mexico since the beginning of the pueblo and cliff-dwelling period (Smithson. Instn. Bur. Amer. Ethnol. Bull. 54, 1913). Henryk Arctowski finds that the anomalies of the corn crops "reflect the anomalies of solar radiation, under the influence of climatical variations" (*Bull. Amer. Geogr. Soc.*, XLIV, 1912). He has investigated also the question of climatic changes in New York City (*ibid.*, XLV, 1913).

Climatology of the United States.—Arthur Glüser has made a notable contribution to American climatology in his study of the cloudiness and sunshine data for the United States. This is the most complete discussion of the subject which we have (*Aus dem Archiv der Deutschen Seewarte*, XXXV, 1912). Charles F. Brooks has constructed a new chart of mean annual depth of snowfall on the basis of 15 years' observations, which shows the conditions of snowfall more accurately than did any of the charts which preceded it (*Quart. Journ. Roy. Met. Soc.*, XXXIX, 1913). The Weather Bureau has summarized the climatological data of the United States by sections, 106 in all (U. S. Weather Bureau Bull. W, 1912). This publication includes the information that is usually desired regarding the climate of different parts of the country. P. C. Day has discussed the wind records for the 20-year period 1891-1910, and has drawn charts showing the average hourly velocities and directions for special months and hours (*Yearbook U. S. Dept. of Agric.*, 1911). The important question of the relation of forests to the conservation of snowfall, especially in relation to irrigation, has been studied by J. E. Church, Jr. (*Bull. Intern. Irrig. Congr.*, I, 1912; *Sci. Amer. Suppl.*, LXXIV, 1912). Ford A. Carpenter has given a clear and vivid account of the climate and weather of San Diego (Harrisburg, Pa., 1913). O. L. Fassig has presented an abstract of a report on the climate of Porto Rico (*Ann. Assoc. Amer. Geogr.*, I, 1911). William G. Reed has discussed the rainfall of Berkeley, Cal., on the basis of 25 years of observation (*Univ. of Cal. Publ. in Geogr.*, I, 1913).

TERRESTRIAL MAGNETISM

R. L. Faris

Magnetic Work on Land.—The general magnetic surveys in the United States, Canada, India, and Egypt were continued by the governments of these countries. Land magnetic observations by the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, in continuation of its general magnetic survey of the world, were made at many places in northern, western, and central Africa; northern Venezuela, Brazil, and other countries of South America. Good progress was made in the general magnetic survey of Australia and outlying islands, which is being carried out under the above mentioned department of the Carnegie Institution. It is of interest to note also that this department has this year made a series of magnetic observations in one of the regions of maximum intensity of the earth's magnetic force, which lies southwest of Hudson Bay in Canada. A series of magnetic observations were made on the Lena River down to its estuary, which is in the region of the Siberian focus of maximum magnetic intensity. A magnetic party was at work in the Philippines, and another in the Hawaiian Islands under the direction of the Coast and Geodetic Survey, special work being carried out by the Hawaiian party in the immediate vicinity of the Kilauea volcano. Land magnetic work is also in progress in Great Britain, Germany, France, Italy, and Russia.

Ocean Magnetic Work.—The magnetic survey vessel *Carnegie* completed the three years' magnetic survey cruise of the oceans, mentioned in previous issues of the Year Book (1911, p. 596; 1912, p. 615), having in the three years made a complete circumnavigation of the globe and traversed over 70,000 miles. The accurate ocean magnetic data now secured by the Department of Terrestrial Magnetism of the Carnegie Institution embraces all of the oceans between the parallels of latitude of 50 deg. north and 50 deg. south. The data secured have been promptly reported to hydrographic establishments, thus enabling them to correct the ocean magnetic charts.

Secular Variation over Ocean Areas.—During the year the *Carnegie* intersected the courses of previous expeditions as well as crossing some of her previous tracks, and again secured secular change data or amount of annual change in the magnetic elements; these data are much needed in order that the magnetic charts of the oceans may be properly corrected up to date.

New Instruments. — The marine earth inductor installed on the *Carnegie* last year has proven satisfactory for the measurement of the magnetic dip at sea and is found superior to the dip circle heretofore used for such measurements. A combined magnetometer and portable earth inductor for use on land has been designed and constructed in the shop of the Department of Terrestrial Magnetism of the Carnegie Institution. The earth inductor is designed to replace the dip needles heretofore used in the universal magnetometer for field use.

Antarctic Magnetic Work. — The Mawson Antarctic Expedition secured a valuable series of magnetic observations in the vicinity of the south magnetic pole, which have been forwarded to the Department of Terrestrial Magnetism of the Carnegie Institution for reduction.

Bibliography.—The results of experimental and mathematical research in terrestrial magnetism are seen in a number of papers and publications that have appeared during the year. The investigations into the nature and causes of terrestrial magnetism have largely centered around the fundamental idea, suggested by Schuster, that every rapidly rotating body may produce a magnetic field. The two most important papers along these lines are by L. A. Bauer "On the Origin of the Earth's Magnetism" (*Phys. Review*, March, 1913), and by George E. Hale on "The Earth and Sun as Magnets" (*Pop. Sci. Monthly*, August, 1913). In a paper "On the Diurnal Variations of the Earth's Magnetism Produced by the Sun and Moon" (*Phil. Trans. Roy. Soc.*, Series A503), S. Chapman discusses diurnal variations of the earth's magnetism produced by the tidal effect of the sun

and moon and the variable conductivity of the atmosphere. Dr. Chree continues his comparative studies of terrestrial magnetism and sunspots in his paper on "Some Phenomena of Sunspots and Terrestrial Magnetism," Part II (*ibid.*, Series A502); and A. L. Cortie has contributed three papers on "Sunspots and Terrestrial Magnetic Phenomena" (*Monthly Notices, R. A. S.*, LXXIII, Nos. 3, 6, and 7). In *Die Bestimmung der Elemente des Erdmagnetismus und ihrer Zeitlichen Aenderungen*, H. Fritsche has brought together and enlarged upon his previous work. The publication contains isogonic charts of the major portion of the northern hemisphere at epochs of 50-year intervals from the year 1000 to 1550. In a note on "Variations in the Earth's Magnetic Field" (*Science*, Aug. 29, 1913), F. E. Nipher discusses the ionization of the molecules of the air by the sun's radiation, thus causing them to become little magnets, which then tend to act in such a way as to add their effect to that of the earth's field. Experiments were made, the results of which seemed to offer a rational explanation of the conditions which bring about local, daily, and annual variations in the earth's magnetic field. "Land Magnetic Observations, 1905-10" (C. I. W. Pub. No. 175, 1912), by L. A. Bauer, contains the results of land magnetic observations obtained by the Department of Terrestrial Magnetism of the Carnegie Institution from 1905 to 1910 inclusive. Several volumes of current field and observatory results have been issued by the United States Coast and Geodetic Survey.

GEOGRAPHY

PHYSICAL GEOGRAPHY OF LAND AREAS

W. M. Davis

International Geographical Congress.—The Tenth International Geographical Congress, originally planned for October, 1911, was finally held in Rome at the period of its second postponement, March 27 to April 3, 1913. The attendance, about 400, was less than had been hoped. The daily sessions suffered because many promised papers, announced in the programme, were not presented in the unexpected absence of their authors. Two matters of wide importance were discussed: first, the International Map of the World on the scale of 1:1,000,000, to which the Congress at Geneva (1908) gave a favorable impulse and which is now in process of publication by many coöperating governments; and second, the Atlas of Land Forms (*Atlas photographique des formes du relief terrestre*), edited by Chaix, Brunhes and de Martonne, aided by a large international committee; the extended publication of this atlas is now assured by a sufficient number of subscriptions. The visiting members of the Congress were received with abundant hospitality; the local excursions were criticised as insufficiently organized. The next Congress will be held in St. Petersburg in 1916. A discussion has been opened in *Petermann's Mitteilungen*, on the best method of organizing and conducting congresses of this kind.

American Geographical Society.—The transcontinental excursion of the American Geographical Society (1912) has been given favorable mention in a number of foreign geographical journals. The most extended account occupies the whole (96 pages) of the *Annales de Géographie* (Paris) for March, 1913; it contains separate articles by eight French members. An enjoyable summary is given by Partsch in the *Zeitschrift der Gesellschaft für Erdkunde*, Berlin, and a painstaking review by Marinelli in the *Revista Geografica Italiana*. Evidently, the excursion provided much new information on the United States for its European members.

New Interpretations.—Prof. J. Barrell (Yale) announced at the New Haven meeting of the Geological Society of America in December, 1912, a new interpretation of the gently slanting uplands of southern New England, which had for over 20 years been regarded as an uplifted and dissected peneplain. According to Barrell, the even skyline of the uplands is not continuous, but is divided into a number of broad steps, rising inland and separated by scarps a hundred feet or more in height; and the steps are

taken to represent platforms of marine abrasion, cut back 10 or 20 miles during successive pauses in the uplift of the region.

Prof. D. W. Johnson (Columbia) is continuing his Shaler Memorial Investigation of the fixity of the Atlantic coast of North America: his latest contribution touches a supposed case of subsidence in Prince Edward Island (*Geogr. Jour.*, XLII, 152-64). The new principle which Johnson has introduced and is here applying is that, as the sea changes the outline of the shore, the changed shoreline reacts on the tides, increasing or decreasing their range; the new relation thus produced between high tide and land levels, which has heretofore been accepted as proving an uplift or depression of the land, is shown by Johnson to be often independent of such changes; he concludes that our whole Atlantic coast line has enjoyed approximate stability for several thousand years.

At the New Haven meeting of the Association of American Geographers in December, 1912, announcement was made by the present writer of a new explanation proposed by O. Lehmann (University of Vienna) for underfit rivers, that is, for rivers the meanders of which are of smaller pattern than the curves of the valley which they follow. The previous explanation, by loss of volume through capture and diversion of upper waters to some other river, applies in some cases, but is not competent in all. Lehmann's principle is that the loss of volume as indicated by underfit rivers may be due to increased percolation through underlying rocks and to increased underflow through the alluvium of the valley floor, in the mature stages of the erosion cycle.

Coral Reefs.—The centenary of the birth of James Dwight Dana, born Feb. 12, 1813, geologist of the Wilkes Exploring Expedition and professor of geology in Yale University, was a fitting occasion for bringing to renewed attention his long-neglected confirmation of Darwin's subsidence theory of coral reefs. Darwin did not note that independent evidence of subsidence is found in the submergence or drowning of the valleys in the dissected central island, whereby its shoreline becomes embayed. Dana first pointed this out in 1849; it has been recently emphasized by Australasian observers, especially by P. Marshall of Dunedin, New Zealand ("Oceanica," in Steinmann and Wilcken's *Handbuch der regionalen Geologie*, VII, 1912). The problem is summarized in the *American Journal of Science* for February, 1913.

Modern Explanatory Methods.—The progress from the older-fashioned empirical description of land forms to the more modern explanatory description is reviewed by A. Rühl, of the University of Berlin ("Eine neue Methode auf dem Gebiet der Geomorphologie," in Abderhalden's *Fortschritte der naturw. Forschung*, VI, 1912). He emphasizes the importance of a systematic explanatory terminology, based on the idea that every topographical feature shows in its surface a certain stage of development under the action of external processes working on a structural mass; and that the stage of development, from an initial form due to upheaval to an ultimate form of completed erosion, may be concisely indicated by such terms as young, mature, and old.

Block Diagrams.—Apropos of the increasing use of block diagrams in physiographic articles, mention may be made of "La théorie du bloc-diagramme" by P. Castelnau (*Bull. Soc. Topog. de France*, XXXVI, 1912), in which the method of constructing such illustrations is set forth; the emphasis is, however, too much on the geometrical rather than on the geographical aspects of the problem. Block diagrams are used in the physiographic chapter of a report on "Southern Vancouver Island" by C. H. Clapp (Geol. Survey Canada, Ottawa, 1912), in an article on Morocco by A. G. Ogilvie (*Geogr. Journ.*, XLI, 230-37), in an account of southeastern India by S. W. Cushing (*Bull. Amer. Geogr. Soc.*, XIV, 81-92), and in Cotton's essay, referred to below.

Physiography in Spain.—Gratifying indications of geographical awakening in Spain are found in a "Resumen fisiográfico de la península ibérica," by Prof. J. D. Cereceda of the Institute of Guadalajara (*Trab. Museo Cien. Nat. Madrid*, November, 1912). It opens with a valuable bibliography; then gives a general sketch of the

physiographic provinces of the peninsula, and after this treats each province with some detail and with much more modern style than is customary in Spanish geographical essays.

Two-Cycle Mountains. — Various studies in recent years have shown that many mountain ranges in different parts of the world are not now in their first cycle of erosion, introduced by the upheaval that produced their deformed structure, but in a second or later cycle, introduced by upheaval with moderate deformation at a late stage of a preceding cycle. Features of this kind, already reported for the Tian Shan Mountains of central Asia by earlier observers, are confirmed by Fr. Machatschek of the University of Vienna ("Der westliche Tianschan," *Peterm. Mitt. Ergänz'hft.*, 176). The mountains repeatedly show lowlands of a former cycle of erosion, now uplifted in lofty highlands of moderate inequality, surmounted by still loftier summits, the monadnocks or surviving eminences of the former cycle, and interrupted by deep valleys, the work of revived rivers in the present cycle. In this connection reference should be made to *The Duab of Turkestan*, by W. Rickmer Rickmers (Cambridge, England, 1913), in which the photographic illustrations are unusually fine.

One-Cycle Mountains.—In contrast with the Tian Shan as two-cycle mountains, the Kaikoura ranges of New Zealand are described by Prof. C. A. Cotton of Victoria College, Wellington, N. Z., as one-cycle ranges ("Physiography of the Middle Clarence Valley, New Zealand," *Geogr. Journ.*, XLII, 225-46); that is, as ranges which retain in their altitude some measure of the strong uplifting deformation to which their compound body, consisting of a greatly disordered older mass and 12,000 ft. of covering strata, has been subjected. The chief merit of this paper, however, lies in its unusual clearness and intelligibility; it is a masterpiece of lucid presentation. After a short introduction, there comes a "brief description," illustrated with an outline map, an excellent block diagram, and a number of expressive outline sketches; then separate discussions of six special topics; and finally an appendix to which the geology of the district is wisely relegated.

Jura Mountains.—Unlike the foregoing easily intelligible essay is the "Morphology of the Bernese Jura" by Prof. P. Schlee of Hamburg (*Mitt. Geogr. Gesellsch. Hamburg*, XXVII, 79-118), which is difficult to read without table of contents, page headings, and paragraph headings, to say nothing of an oversupply of geology for a geographical article and a too free use of generally unknown local names, as if they were known; but the article is redeemed by the best photographic views yet published of several transverse valleys in the Jura arches.

Rias.—A quarter century ago it was proposed by von Richthofen that branching embayments due to subsidence of a normally dissected land surface and the partial submergence of its valleys, in accordance with Dana's principle above noted, should be called by the Spanish term *ria*, locally applied to the embayments of the Galician coast. Ria would thus stand in contrast to the simpler, but stronger embayments of mountainous coasts in high latitudes known by the Norwegian term *fiord*, and now understood to be the result of the submarine overdeepening of preglacial valleys by glacial erosion. A welcome study of the rias of Galicia has lately been made by E. Scheu of the University of Leipzig ("Die Rias von Galicien, ihr Werden und Vergehen," *Zeitschr. Gesellsch. f. Erdk.*, 1913, 84-114, 193-210), from which many details of their simple origin may be learned.

East Central Africa. — Prof. Fr. Jaeger of the University of Berlin has prepared a fine report, with sketches, photographs, and maps, on his explorations in East Central Africa ("Das Hochland der Riesenkrater," *Mitt. deut. Schutzgeb., Ergänz'hft.*, 8, 1913), which treats especially the great volcanoes that have been built up on a district of displaced fault blocks southeast of Victoria Lake. Several down-faulted troughs are described. The embayed shoreline of Victoria Lake is due to "ingression" of lake water into land valleys as a result of volcanic obstruction elsewhere.

Local Problems.—A few of numerous excellent articles on local problems

may be mentioned. An excellent account of the floods of the Niger is given by J. A. Millot (*Ann. de Geogr.*, XXII, 68-93), showing their value at various stations and change of form with down-stream progress. G. Trabucco treats of landslides (*frane*), a subject of unhappily great importance in parts of Italy (*Revista Geogr. Ital.*, XX, 330-41). The coast platform of western Norway, explained 20 years ago by Reusch as an uplifted, dissected, and glaciated platform of marine abrasion, but later otherwise explained by Nussbaum, de Geer, and Sederholm, is again discussed by Prof. A. G. Högbom of the University of Upsala (*Bull. Geol. Inst. Upsala*, XII, 41-64), who supports Reusch in accepting its marine origin. A peculiarly interesting group of features in Dalmatia is described and illustrated by O. Maull of Frankfort ("Geomorph. Studien aus Mitteldalmatien," *Geogr. Jahresber. aus Oesterr.*, XI, 1913); an unusually smooth peneplain, worn on tilted limestones and surrounded by surviving subdued mountains, is sharply trenched by the Kerka River, in the bed of which travertine has been so actively formed as to produce a barrier 35 or 40 m. high, on the face of which the river descends in fine cascades, and back of which the river is upheld in a long branching lake. The *University of California Publications on Geography* begin with "The Russian River . . . of the Californian Coast Ranges" by Prof. R. S. Holway (I, 1-60), describing the peculiar behavior of the river, which, after flowing 50 miles southward in an open valley that continues to San Francisco Bay, runs 20 miles west through a mountain gorge to the Pacific. Grant and Higgins have prepared an illustrated account of certain coastal glaciers in Alaska (Bull. 526, U. S. Geol. Surv., 1913).

OCEANOGRAPHY

G. W. Littlehales

International Exploration of the Sea.—The hope is springing up that, through the International Council for the Exploration of the Sea, in which America has now accepted representation, preliminary expeditions may soon be sent over the Atlantic Ocean, by the nations in concert, to investigate the nature and regional extent of the periodic variations in the pressure, temperature, salinity, density, and velocity of the layers of water down to a depth of 1,000 m. and to determine the extent to which a single observation may represent the average condition of the greater depths. This is looked forward to in preparation for the physico-biological exploration of the Atlantic, which was recognized by the recent International Geographical Congress as being one of the most urgent tasks in the field of oceanography, and for the advancement and promotion of which an international committee has been formed.

Ocean Temperatures near Icebergs.—The discussion of the observations taken with the microthermometer on board the U. S. S. *Birmingham* and *Chester* in the iceberg region of the North Atlantic, for the purpose of determining whether the changes of temperature would afford an indication of the approach of a vessel to an unseen mass of ice, have not revealed such a characteristic. Indeed, the question is still in doubt as to whether icebergs influence to any measurable extent the temperature of the sea at the distance of a mile or so.

The Age of the Ocean.—The salt contents of the ocean have now been estimated with some approach to exactness, and the amount of sodium, an element which remains in solution and is not deposited from sea water, has been found to be 158,357,000 tons. In a recent bulletin, the U. S. Geological Survey, having reckoned the annual rate of discharge of sodium into the ocean from the rainfall and run-off of the globe and the average composition of river water, has announced, as a provisional result found by dividing this annual rate into the sodium content of the ocean, that the age of the ocean, since the earth assumed its present form, is somewhat less than 100,000,000 years.

Sea-Level Variations.—There is a residue of progressive change in the average height of the sea level at a given place, even after all the effects of variations of wind, barometric pressure, and air temperature have been eliminated. In the *Bulletin of the Im-*

perial Earthquake Investigating Committee, 1913, Omori has correlated this phenomenon with the variation of latitude.

Application of Mathematics to Oceanography.—In the light of Eckman's theory of ocean currents, McEwen of the San Diego Marine Biological Laboratory has shown in the *Internationale Revue der . . . Hydrographie* that the low ocean temperature bordering the Californian coast is due to the upwelling of cold, saline, abysmal water. Eckman began by solving a series of simple typical problems by exact analytical methods, and afterwards approached the solution of natural conditions by suitably combining the several typical solutions. Adopting these considerations, McEwen has deduced a formula by which the abnormal temperatures of this region have been calculated. As touching this subject, mention is made that Clark, in his *Study of the Salinity of the Surface Waters in the North Pacific Ocean and Adjacent Enclosed Seas*, just published by the Smithsonian Institution, has brought out the sharp northward bending of the isohalines of the Californian ocean waters in summer, and shown this to be in accord with the sharp southward bending of the isotherms which Thorade found to take place in that part of the year.

Bibliography.—The spread of interest in oceanography is being promoted by the publication, in the train of the scientific epitomes which have been produced in recent years, of popular works by well-qualified authors in England, France, and Germany, who have produced such meritorious books as the *Science of the Sea*, by G. Herbert Fowler of the Challenger Society; *De la Surface aux Abimes*, by C. Delagrave, with a preface by the Prince of Monaco; *La Mer: la mer dans la Nature, la mer et l'homme*, by G. Clerc-Rampal, with a preface by Prof. A. Berget of the Institut Océanographique of the University of France; and *An der See*, by Prof. P. Dahms. They teach the science of oceanography and its relations to humanity in such a manner as to serve as textbooks in the schools and at the same time to meet the needs of general readers.

CARTOGRAPHY

W. L. G. Joerg

The publications of the past year in cartography may properly be considered under two heads: those dealing with the principles of the subject itself, and new maps.

General Works.—Among recent general works, M. Groll's *Kartenkunde*, in two volumes, I, *Die Projektionen*, and II, *Der Karteninhalt* (Leipzig, 1912), is noteworthy because of its well-balanced treatment of essentials. In the section on map projections, only those of geographical value are included; a synoptical table classifying projections according to their properties and a list of those best suited to the representation of different regions are helpful additions. The second volume discusses the classification of maps, topographical surveys, the content, drafting, and printing of maps, and cartometry, and contains a short history of cartography.

A third edition has appeared of A. Bludau's revision of the *Leitfaden der Kartenentwurfslehre*, by K. Zöppritz (Leipzig, 1912), which deals with map projections. Although the standard publication of its type, the new edition still suffers from a certain breadth and a lack of clearness regrettable in a book intended for use as a textbook.

In view of the dearth, in English, of treatises written from the geographical, rather than the mathematical viewpoint, A. R. Hinks' *Map Projections* (Cambridge, 1912) may be mentioned here.

For the progress made in all phases of general cartography, reference should be had to the recurring critical reports by H. Haack in the *Geographisches Jahrbuch* (Gotha), the last, in Vol. XXXIII, 1910, covering the period 1906-08.

New Maps.—The leading lists of new maps were referred to in the Year Book for 1912 (p. 621). A selection of the most important publications of the year is given in the following paragraphs.

International Map of the World.—The International Map of the World on the scale of 1:1,000,000 did not progress as rapidly as in 1912. Differences which had arisen in the in-

terpretation of various symbols made it seem advisable to defer further publication until these matters had been settled. The delegates of the bureaus concerned who met at the International Geographical Congress in Rome in March-April, 1913, decided to reconvene for this purpose in Paris at the end of the year. Nevertheless, the following sheets have been issued, all of a provisional nature, however: North L-34 (Budapest), with hypsometrical coloring, by the Hungarian Geographical Institute, Budapest; South F-19, H-19, I-18, I-19, J-18, J-19, in black and white, with contours, comprising the whole of Chile between 20° and 24° S. and 28° and 40° S., by the Oficina de Mensura de Tierras, Santiago; and the Argentine portions of South G-21, H-21, I-21, by the Instituto Geográfico Militar, Buenos Aires.

Geological Map of the World.—At the International Geological Congress at Toronto, August, 1913, it was decided to begin the publication of an International Geological Map of the World as outlined in the resolutions adopted at the preceding congress at Stockholm. The map will consist of 80 sheets on the mean scale of 1:5,000,000; each hemisphere will be drawn as a unit on the stereographic projection.

Maps of the Oceans.—In the domain of oceanography two important publications have appeared. The maps of the Atlantic, the Pacific, and the Indian Ocean, by M. Groll, on the mean scale of 1:40,000,000, with explanatory text (*Tiefenkarten der Ozeane*, Veröffentl. Inst. Meereskunde, Neue Folge, Reihe A, Heft 2, Berlin, 1912), are an exhaustive compilation of all the material available as to the configuration of the ocean floor. Below the continental shelf, which is colored buff, depths are indicated by deepening shades of blue, which merge into purple and pink for the abyssal regions and the troughs. The scale chosen allows of the recognition of the broad, general features at a glance, while the limits of each map are inclusive enough to bring out the relationship of the main ocean to the surrounding seas and land areas. Thus, the map of the Atlantic includes the whole Arctic Ocean, that of the Indian, the whole Antarctic Continent. The use of an equal-area projection is also invaluable in insuring proper conceptions as to size.

The second publication is a new edition of the standard *Carte Générale Bathymétrique des Océans* on Mercator's projection (equatorial scale, 1:10,000,000), published under the direction of J. Thoulet by the Institut Océanographique of Paris, founded by the Prince of Monaco. Four revised sheets have so far appeared: A I, A II, A III, A IV, comprising the zone between the equator and 46° 40′ N. While the map has up to the present time only represented the depths of the ocean, the new edition shows in addition the relief of the land. For this, as for the representation of submarine relief, contours are used, supplemented by brown tints on land and blue on the ocean.

Atlases of China.—A signal event is the posthumous completion of Richthofen's monumental work on China. The newly published Volume III is accompanied by an *Atlas of Southern China*, edited by M. Groll (Berlin, 1912). The atlas consists of 14 sheets on the scale of 1:750,000, which embrace the Red Basin of Szechuan, the whole Yantzekiang valley, and the meridional strip extending from the Yantzekiang in 113° E. to Canton. Of each sheet there is a topographical and a geological edition.

A similar work is the atlas of 31 sheets, 1:200,000, comprising the Chinese portion of A. Tafel's route surveys in China and Tibet in 1905-08, published by the Berlin Geographical Society. The region represented is the loop of the Hoangho from Hsiningfu to the river's emergence into the Chinese Plain.

Polar Maps.—In polar exploration Amundsen's map of the South Polar region, 1:5,200,000, accompanying Volume II of his *South Pole* (New York, 1913), is probably the most interesting. Of the maps accompanying Charcot's scientific report (Paris, 1912), that entitled *Antarctide Sud Américaine et Iles Environnantes*, on the mean scale of 1:1,500,000, is the most valuable. Sketch maps of Filchner's explorations in the Antarctic were published in the *Zeitschrift der Gesellschaft für Erdkunde* (No. 1, 1913).

Density of Population Map of Europe.—A noteworthy map in the field of anthropogeography is the map of the density of population of Europe, 1:10,000,000, by L. Weise (Pl. 2, *Petermanns Mitt.*, LIX, first half). Besides being based on the recent censuses of 1910-11, its importance lies in the large number of density grades shown, which make for a more detailed representation than heretofore available. Unfortunately, the color scheme chosen fails to suggest the sequence of the density grades.

Balkan Maps.—Of the maps brought forth by the Balkan War, two deserve mention. One is the admirable ethnographic map of the Balkan Peninsula, 1:1,500,000, by J. Cvijić (Pl. 22, *Petermanns Mitt.*, LIX, first half). The differentiation between the ethnographic units is detailed, due weight being given to the religious factor as a subdivisional element. The other map, entitled *Südöst-Europa mit den neuen Grenzen*, 1:2,000,000, and edited by K. Peucker (Vienna, 1913), is of interest in that it shows the new boundaries of the Balkan States.

Forest Atlas of North America.—Attention should also be called to the publication by the Forest Service (Washington, 1913) of the first part of a series of atlases which, when completed, will show the distribution of all North American trees, exclusive of those occurring wholly in Mexico. The first part, by G. B. Sudworth, represents 36 species of pine on maps of North America on the scale of 1:18,000,000.

Debes' Handatlas.—Finally, mention may be made of the fourth edition of E. Debes' *Neuer Handatlas* (Leipzig, 1913). Although not containing so many or so detailed maps as some other general atlases, Debes' Handatlas remains distinctive for the critical quality of its content and for the special attention given to the selection of suitable projections.

EXPLORATION AND DISCOVERY

HENRY GANNETT

Antarctic.—The YEAR BOOK for 1912 (p. 623) told of Amundsen's success in reaching the South Pole and contained latest advices from Captain R. L. Scott's expedition, which were to the effect that Captain Scott, with his four companions, was in latitude 87 deg. 36 min. South on Jan. 4, 1912, 150 miles from the Pole, with an abundance of provisions and with every prospect of reaching the goal. No further word was heard from this party until Feb. 10, 1913, when the world was startled with the news that a terrible disaster had befallen the expedition; that Scott and his four companions, Lieut. Bowers, Dr. Wilson, Capt. Oates, and Mr. Evans, after reaching the South Pole and finding Amundsen's records, had, on their return, been starved and frozen to death within 11 miles of a depot of food and fuel and only 150 miles from their headquarters on the coast. It seems, from Captain Scott's diary, which he kept up almost to the time of his death, that the party had been caught in a blizzard which absolutely prevented traveling and which continued for nine days.

A part of the Australian Expedition under Dr. Mawson, including Frank Wild and seven members of his party, who were landed on Termination Land, returned to Sydney early in the Spring of 1913. They report great success; the expedition mapped about a thousand miles of coast line and did much valuable geological work, securing specimens from numerous widely separated localities. With them was a part of Dr. Mawson's party. It appears that the *Aurora*, Dr. Mawson's ship, arrived at his station on Adelie Land, but found that Dr. Mawson and two other members of the party had not yet returned from a long expedition to the eastward. The ship took off part of the party and then, as the season was late, decided to go and pick up Mr. Wild's party, 1,200 miles to the westward, on Termination Land. They had hardly started when they received a wireless to the effect that Dr. Mawson had just returned, but that his two companions had died, Lieut. Innes having fallen into a deep crevasse and Dr. Merz having perished from hunger and exposure. Dr. Mawson and his small party spent another winter in the Antarctic.

The German expedition under the command of Lieut. Filchner went in

the *Deutschland* to Coats Land, with a view to establishing a station and sending out exploring parties inland therefrom. They found a broad bay similar to Ross Sea on the other side of Antarctica, filled with a great field of ice, with an ice cliff at its northern limit. An attempt to make a landing on an immense ice floe ended in disaster, as the floe got adrift and broke up. This was in latitude 78 deg. South. The ship then attempted to proceed north, but was caught in the ice and held all winter and until November, when the expedition was abandoned.

Arctic.—Late in 1912 Vilhjamur Stefansson and R. M. Anderson returned after four years' exploration in northern Canada and on the Arctic coast. They explored and mapped a large area on the mainland east of the lower Mackenzie River and the adjacent islands, and discovered several villages of "white Eskimo," who are supposed to be descendants of Danes who have migrated westward from Greenland (*A. Y. B.*, 1911, p. 666; 1912, p. 679).

Since their return from this expedition the Canadian Government has made provision for further exploration by them of adjacent regions, especially of Banks Land, Prince Patrick Island, and of possible lands in the Arctic Ocean to the northwest. This expedition is now well on its way, the most recent advices indicating that their vessels, three in number, have passed through Bering Strait on their way to Herschel Island at the mouth of the Mackenzie. They expect to be absent from civilization for at least three years. The expedition is amply provided for in every respect and the scientific staff consists of 15 persons.

From a study of the tides in the Arctic Ocean it is believed that there must be, somewhere north of Alaska, a considerable body of land or a large group of islands, and one of Mr. Stefansson's purposes, if not his main purpose, is to search that part of the Arctic Sea in which this land is supposed to be, and if discovered, to explore it.

This land may be the Crocker Land seen by Admiral Peary at a great distance from the highlands at the mouth of Nansen Sound. To explore this land an expedition has been organized by the American Museum of Natural History of New York and the American Geographical Society, under command of D. B. MacMillan, who, it will be remembered, was one of Peary's lieutenants in the expedition which reached the North Pole. This expedition started late in the summer of 1913, intending to winter on the west coast of Smith Sound, opposite Etah and thence to sledge across Grant Land to its west coast at the mouth of Nansen Sound. Latest advices show that this expedition reached Etah, but was unable to cross Smith Sound. It will doubtless cross on the ice as soon as it becomes light enough.

Much activity has been shown in the exploration of the north coast of Siberia. A Russian expedition, under Major-General Sergeief, has left Vladivostok in two icebreakers for the purpose of making its way to the mouth of the Lena, and, if possible, continuing the voyage through Kara Sea to Europe. Another expedition, under the leadership of Lieut. Brussilov, left St. Petersburg in July, 1912, for the purpose of passing around Siberia to the eastward. A third expedition under Captain Wilketsky has, according to press reports, discovered a large island to the north of Cape Chelguskin. It is said to extend as far north as latitude 81 deg. and to lie between longitudes 96 deg. and 140 deg. East, thus being east of Franz Josef Land and south of Nansen's drift route.

Greenland.—The Mikkelsen expedition for the recovery of the records of the unfortunate Mylius Erichsen expedition and for exploration in northeastern Greenland, which left Copenhagen in 1909, returned in July, 1912. They were successful in recovering the records, and made, at the cost of great hardships and danger, a long journey over the inland ice, from Shannon Island to the head of Denmark Fiord.

A Danish expedition, under Captain Koch, set out in June, 1912, to cross the inland ice of Greenland at about its widest part. The expedition was landed upon the east coast, and on April 20, 1913, started inland with five sledges drawn by horses, and reached the west coast at Proeven,

near Upernivik, on July 12. The greatest altitude reached on the journey was about 9,000 ft. above the sea.

Another expedition has crossed the island; this, under M. Quervain, crossed from the west coast in latitude 69 deg. 45 min. North to Augmagsalik on the east coast. The highest point reached was a trifle over 9,000 ft. above sea level.

Franz Josef Land.—A French expedition, organized by M. Jules de Payer for the exploration of the northeastern part of Franz Josef Land, sailed from Havre on Aug. 10, 1913, intending to winter at Vardö. The Russian expedition for the exploration of this same region has not been heard of definitely, although rumors of a disaster have reached Russia.

Peru.—During 1912 Prof. Hiram Bingham conducted a second expedition to Peru, which was financed jointly by Yale University and the National Geographic Society (*A. Y. B.*, 1912, p. 685). Much topographical and geological work was done in Cuzco and the Urubamba River valley cañon. The main feature of the expedition's work was the discovery of an ancient Inca capital, Machu Picchu, which is situated on a mountain in the cañon of the Urubamba River. This is a large place, wonderfully well built with cut stone, and when cleared of the tropical undergrowth which enshrouded it, seemed to be wonderfully preserved. This is probably one of the most notable discoveries of its kind ever made. Another expedition to Peru, under the auspices of the American Geographical Society, and the leadership of Prof. Isaiah Bowman, who was geologist with Prof. Bingham's expedition in 1911, started for its field of work in June, 1913. The objects are geological, geographical, and anthropological.

Brazil.—An expedition was sent out in March, 1913, by the University Museum of Philadelphia to explore the Amazon Basin. The leader is Dr. W. C. Farabee. It is carried on a fine steam yacht commanded by Capt. J. H. Rowen (U. S. N. retired), who has charge of the geographic work.

India.—Under the auspices of the Indian Government, an expedition in two detachments, under J. Barnard and F. V. Clerk, has been sent out to explore the head waters of the Irawadi River.

New Guinea.—The German expedition for the exploration of the Kaiserin Augusta River reports excellent progress, and it was expected that the exploration of the lower and middle portions of this river and the neighboring country would be completed by the end of 1913. In western New Guinea, Dr. Wollaston, accompanied by Lieut. Vanderwater of the Dutch Army, succeeded in reaching the summit of Mt. Carstensz, the height of which is approximately 16,000 ft. Several other expeditions, among them those under Capt. Hordershee, Dr. Moszkowski, and Weyerman, are engaged in extending the known area of this great island.

Africa.—The Saharan Railway expedition was organized for the purpose of discovering the best railway route from Adrar to Lake Chad and the Niger valley. In the course of this work, carried on during 1912, many lines were run and a great extent of country was mapped. An English punitive expedition sent to Odonga, in the Egyptian Soudan, to subdue the unruly Anuak Tribes has added to our information regarding this part of Africa. Further exploration of the Kamerun has been made by a Dutch party under Professor Thorbecke. A French expedition has made explorations in the southern part of Angola.

XXVI. CHEMISTRY AND PHYSICS

CHEMISTRY

INORGANIC AND PHYSICAL CHEMISTRY

ARTHUR WESLEY BROWNE

Water.—It has been shown by Guy, Schaeffer, and Jones that aqueous solutions of substances that form hydrates are more transparent, while solutions of substances that do not form hydrates are less transparent than pure water. These facts, which were ascertained with the aid of a radiomicrometer, are considered by the investigators to furnish new evidence for the solvate theory of solutions.

Hydrogen Peroxide and Ozone.—F. Fischer and Priess have found it possible to obtain large yields of hydrogen peroxide by reduction of oxygen gas under a pressure of from 25 to 100 atmospheres. The reduction was effected either electrochemically, with a dilute acid as the electrolyte, or chemically, as, for example, by use of a liquid zinc amalgam with dilute sulphuric acid. A method for the preparation of relatively concentrated solutions of ozone in dilute acids has been devised by Rothmund and Burgstaller, who have also studied the velocity of decomposition of ozone in aqueous solution. The intense orange-red coloration noted by Manchot when ozone was passed into liquid ammonia is probably attributable to the presence of ammonium hydroxide, which would behave similarly to potassium hydroxide (*A. Y. B.*, 1912, p. 627). The use of ozonized air in the detection of methane, which reacts with ozone yielding formaldehyde, is recommended by Hauser and Herzfeld.

Carbon.—A very stable new oxide of carbon with the formula $C_{12}O_9$ has been prepared by Meyer and Steiner by heating mellitic acid with benzoyl chloride. Rhead and Wheeler have reached the conclusion that when carbon and oxygen unite at temperatures up to 900 deg. C., the first product of the combustion is a "loosely formed physico-chemical complex, which may be regarded as an unstable compound, C_xO_y." At a given temperature this complex tends to decompose into carbon monoxide and carbon dioxide in a certain ratio. Lidoff has continued his researches upon oxane (*A. Y. B.*, 1912, pp. 627, 630), and has found that this substance may be obtained by the action of nitrogen peroxide upon charcoal at 150 to 300 deg. C. Even better results were obtained with nitrous oxide.

Photochemistry and Actinochemistry.—By subjecting mixtures of carbon monoxide and cyanogen to the action of ultraviolet light, Berthelot and Gaudechon have obtained the new compound, carbon oxycyanide, $CO(CN)_2$, in the form of a yellow solid which does not sublime at 200 deg., but which reacts with water to form hydrocyanic acid and carbon dioxide. In connection with a study of the dissociation by light of the hydrides of certain elements in the chlorine and oxygen groups, these investigators have found that in photochemical reactions frequency of vibration is analogous to temperature in ordinary reactions, and that the stability of the compounds of elements in the same group toward light decreases with increasing atomic weight of the elements. This latter conclusion was confirmed by results obtained during a subsequent study of the hydrides of certain elements in

the nitrogen and carbon groups. Berthelot and Gaudechon have also used ultraviolet light in effecting the synthesis of formamide from carbon monoxide and ammonia, the decomposition of formamide, the polymerization of cyanogen and acetylene, and the photolysis of acetone, which yields carbon monoxide and ethane in equal volumes. Farnau has made a study of luminescence, which he attributes to chemical action. Increasing the rate of the reaction by raising the temperature or by addition of a catalytic agent was found to increase the luminescence. The quality of luminescence was found to depend but slightly upon temperature, method of production, nature of the catalytic agent, or nature of the anion, but in general to depend almost wholly upon the nature of the cation. Wöhler and Krupko have investigated the sensitiveness to light of various metallic trinitrides. Vincent and Marley have endeavored to duplicate the experiments of Matuschek and Nenning described in the last issue of the YEAR BOOK (p. 627), but have failed to obtain evidence supporting the conclusions of these investigators.

Radiochemistry.—The atomic weight of radium has been carefully redetermined by Hönigschmid, who has studied the ratio $RaCl_2 : 2AgCl$. The result of six determinations, in which a total weight of over six grams of radium chloride was employed, is given as 225.95 + .02. From the ratios $RaCl_2 : RaBr_2$ and $RaBr_2 : RaCl_2$, Gray and Ramsay have obtained the decidedly different value, 226.36. In a second investigation Hönigschmid has repeated the work of these investigators obtaining the result 225.94. As pointed out by S. Meyer, Hönigschmid's value, although not agreeing with that deduced from the atomic weight of uranium, differs from that of lead by just five times the weight of the *alpha* particle. Some information concerning the valence of the radio-elements has been gained by G. v. Hevesy, by a study of the mobilities and the diffusion constants of radioactive substances. In nine cases the valence of the product left after the expulsion of an *alpha* particle was found to differ from that of the parent atom by two units.

Alleged Synthesis of Helium and Neon.—By far the most absorbing scientific topic of the year in chemistry has been that of the alleged synthesis of helium and neon in vacuum tubes. The residual gases obtained by heating deeply colored X-ray bulbs were found by W. Ramsay to contain "a measurable trace of helium in which the neon spectrum could also be recognized." While acknowledging the possibility that these gases might be able to penetrate the walls of the bulb under the influence of the cathode discharge, Ramsay concludes, "it is possible . . . that these gases are in some way the product of the cathode rays." In the opinion of B. Moore, the formation of the gases might be considered to result from a charging of the ether with energy from the cathode, by a process essentially the reverse of that of radioactive decomposition. J. N. Collie and H. Patterson, working independently of each other at first, identified helium and neon after the passage of an electric discharge through tubes containing hydrogen at low pressure, although great care was taken to guard against leakage of gases from the atmosphere into the tubes. In connection with his researches upon positive rays, J. J. Thomson has obtained evidence of the existence of a new gas, of atomic weight 3, which he calls X_3. Under conditions favorable to the formation of this gas, which was obtained by passing the ordinary discharge produced by an induction coil through a large bulb furnished with aluminium terminals and containing gas at low pressure, helium and neon also were usually obtained. The method that gave X_3 and also the other gases in greatest abundance consisted in bombarding metals, or indeed almost any substance, with cathode rays. "The reason helium is obtained by heating the glass of old Röntgen-ray bulbs is, I think, that after liberation by the cathode rays, the helium either adheres to the surface or is absorbed in a much looser way than before it was liberated." As the result of later experiments it was found by Thomson that "when the salts of lithium,

sodium, potassium, or rubidium are bombarded by cathode rays, there is a genuine production, as distinct from liberation of absorbed gas, of helium and X_3, potassium giving the largest supply." He suggests that the emission of helium from these and other substances may be explained on the ground that "other elements besides radium, thorium, and the like make attempts to expel *alpha* particles (atoms of helium). In ordinary elements these particles have not enough energy to get away from the atom; they are, however, as it were, loosened, and can be detached by vigorous bombardment with cathode rays."

Nitrogen.—R. J. Strutt, in the fifth of his series of articles on active nitrogen, asserts that the phenomena are not due to the presence of traces of oxygen in the gas, as has been stated by F. Comte and by E. Tiede. In this assertion he is supported by A. Koenig and E. Elöd. He has, moreover, made a further study of the chemical reactions of active nitrogen, among which are the formation of nitrogen by action upon vapor of mercury, cadmium, zinc, arsenic, sodium, and sulphur, and the production of hydrocyanic acid by action upon various organic compounds. The fixation of atmospheric nitrogen by means of boron compounds has been studied by Stähler and Elbert. W. A. Noyes has obtained some evidence in favor of the existence of a new nitrogen trichloride, containing positive nitrogen and negative chlorine, and prepared by the interaction of nitrosyl chloride and phosphorous pentachloride. Franklin has prepared potassium ammono-magnesate, $Mg(NHK)_2.NH_3$, a new salt belonging to his ammonia series of acids, bases, and salts, by action of potassium amide in liquid ammonia upon a halogen salt, an aquo salt, or an ammono salt of magnesium, or upon the metal itself. He has also prepared potassium ammonotitanate by a similar reaction, and has studied the reaction between potassium amide and cupric nitrate in liquid ammonia. Sommer has obtained hydrazine nitrite by interaction of barium nitrite and hydrazine sulphate. An ammonated ammonium trinitride, $NH_4N_3.2NH_3$, which may be regarded as a new hydronitrogen, has been prepared by A. E. Houlehan. The chemistry of nitric oxide formation in the high-tension arc has been investigated by F. Fischer and E. Hene. After a further investigation of the reaction between nitric oxide and liquid oxygen, F. Raschig has reached the conclusion that the green substance obtained is nitrogen hexoxide, NO_3, as previously asserted (*A. Y. B.*, 1912, p. 628), and has shown that when the substance is washed with liquid nitrogen it loses a part of its oxygen, with formation of isonitrogen tetroxide. Strong has studied the action of the corona discharge upon air, and Hausser has obtained nitric oxide by explosive combustion of coke-oven gas under pressure.

Piezochemistry.—During the last year an increasing interest has been shown in the influence of pressure upon chemical reactions. The decomposition of nitric oxide under pressures up to 700 atmospheres, and at various temperatures, has been studied by E. Briner. E. Cohen and his colleagues have continued their interesting piezochemical studies, and have designed and constructed an elaborate apparatus capable of maintaining pressures up to 1,500 atmospheres constant to within about one per cent. for any desired length of time. With the aid of this apparatus the influence of high pressures upon the velocity of inversion of cane-sugar solutions was studied, and the validity of Faraday's law for pressures up to 1,500 atmospheres was established. By using a suitable bomb, F. Bergius has been able to prepare calcium dioxide from quick-lime and oxygen under 120 atmospheres at 350 deg. He has also obtained coal-like substances by heating peat, wood, or cellulose to 340 deg. under great pressure, and is able to prepare large quantities of pure hydrogen under similar conditions by the action of iron upon water.

Non-aqueous Solutions.—Among the notable contributions made, during the year, to our knowledge of non-aqueous solutions is that published by C. A. Kraus and W. C. Bray on a general relation between the concentration and the conductance of ionized substances in various solvents. In the course of an investigation of the nature of the metallic state, C. A. Kraus has

isolated the metallic groups CH_3Hg, C_2H_5Hg, and C_3H_7Hg, by electrolysis of the respective chlorides in liquid ammonia solution. He concludes that "the metallic state is a molecular and not an atomic property of matter." The behavior of silver, copper, lead, and barium salts of certain organic acids, dissolved in such solvents as benzene, toluene, and petroleum ether, toward hydrogen chloride, has been studied by H. P. Cady and H. O. Lichtenwalter. These investigators note, in contradiction to the earlier work of Kahlenberg, that each solution giving a precipitate shows an appreciable conductivity, and conclude that every one of the reactions is in accord with the dissociation theory. L. Bruner and his colleagues have investigated the electrical conductivity of nitrobenzene solutions, and the electrochemistry of the halogens both in nitrobenzene and in liquid sulphur dioxide. M. E. Holmes has electrolyzed a solution of ammonium trinitride in liquid ammonia, with a view to ascertaining the properties of N_3, the discharged trinitride ion. Fritz Friedrichs has studied the behavior of numerous substances, chiefly inorganic salts, in sealed tubes toward liquid ammonia and toward liquid sulphur dioxide at temperatures ranging from — 80 deg. to + 160 deg. In connection with this work he has formulated a new classification for binary systems, based upon solubility, miscibility, and critical relations.

Sulphur, Selenium, and Tellurium.—The behavior of thionyl chloride toward various oxides and dioxides when heated in sealed tubes to from 150 deg. to 200 deg. has been investigated by A. B. North and A. M. Hageman. It was found that zinc, cadmium, magnesium, and cupric oxides, for example, react under these conditions with formation of the respective metallic chloride and sulphur dioxide. From a study of the solubility of sulphur in sulphur monochloride and in other solvents, A. H. W. Aten concludes that there is evidence of the existence of a new modification of sulphur. W. Hempel and M. G. Weber describe an electrolytic method for the production of hydrogen selenide and hydrogen telluride. The electrolyte used was 50 per cent. sulphuric acid, and the cathodes were respectively of selenium and tellurium.

Boron.—The synthesis of a number of borides has been effected with the aid of the vacuum electric furnace by E. Wedekind. Calculated amounts of amorphous boron and the metal under investigation were in each case compressed into rods, through which the current was passed. The metals used were zirconium, vanadium, molybdenum, uranium, titanium, and tungsten. Of these, only molybdenum and titanium presented difficulties. A. Stock and C. Massenez have obtained two hydrides of boron by decomposition of magnesium boride with acids, and condensation of the gaseous products with liquid air. The formula of one of these, B_4H_{10}, was well established by analysis and by density determinations, and the properties of the substance, which melts at — 116 deg. and boils at + 16 deg., were studied. To the second substance, which boils at about 100 deg., the formula B_6H_{12} was assigned. Stock and Frederici obtained a more volatile compound, B_2H_6, which boils at — 87 deg., by decomposition of gaseous B_4H_{10}. These investigators suggest the use of a bath of melting carbon bisulphide for maintaining a temperature constant at — 112 deg. In a still later article, Stock, Frederici, and Priess have made a further study of B_2H_6 and B_4H_{10}, and have investigated the solid substances obtained by decomposition of gaseous B_4H_{10}. A new compound, $B_{10}H_{14}$, which melts at 99.5 deg., was obtained by heating B_4H_{10} to 100 deg. for four to five hours, or B_2H_6 to from 115 deg. to 120 deg. for 48 hours, as well as several other compounds or mixtures of which the chemical identity has not as yet been definitely established.

Miscellaneous.—A. Werner and his associates have continued their interesting researches upon the asymmetric cobalt atom. T. W. Richards and A. W. Rowe have constructed an improved apparatus for use in determining the specific heats of liquids. Known quantities of heat are liberated in this apparatus by neutralizing accurately known amounts of acid with slight excess of alkali. The specific heats of dilute solutions of hydrogen chloride, hydrogen bromide,

hydrogen iodide, nitric acid, perchloric acid, and of lithium, sodium, and potassium hydroxides were determined. A new proof of the material existence of molecules is said by N. Pihlbad to have been obtained in the course of his investigation of the absorption curves of certain disperse systems containing red, yellow, blue, or violet organic substances in the form of suspensions, colloidal solutions, and molecular solutions. As the size of the particles was diminished, the absorption curves of the disperse systems approached those of the molecular solutions. K. A. Hofmann, O. Ehrhart, and O. Schneider have found it possible to "activate" solutions of sodium chlorate by addition of osmium tetroxide. C. Boulanger and J. Bardet have noted the presence of small amounts of gallium in commercial aluminium and in bauxite. Bearing in mind the observation, previously made by A. de Gramont, that gallium occurs in various feldspars, the investigators suggest that perhaps gallium always accompanies aluminum in nature.

ORGANIC CHEMISTRY

J. M. Nelson

Divalent Nitrogen.—The surprise which was occasioned by the discovery of the existence in the free state of compounds containing trivalent carbon atoms such as triphenylmethyl, lends interest to the preparation of analogous compounds in the nitrogen series. Wieland (*Berichte der Deutsch. Chem. Gesellsch.*, XLV, 2600; *Liebigs Annalen*, CCCXCII, 127) found that certain ditertiary hydrazines, $R_2N\text{-}NR_2$, in which the R represents positively substituted phenyl groups, dissociate to form divalent nitrogen compounds. For instance, tetra-anisyl hydrazine dissociates at room temperature into colored dianisyl nitrogen, $(CH_3OC_6H_4)_2N$, which is capable of adding itself to various unsaturated compounds, such as triphenylmethyl, with which it forms dianisylaminotriphenyl methane $(C_6H_5)_3CN(C_6H_4OCH_3)_2$.

The Non-Equivalence of the Five Valences of Nitrogen.—The non-equivalence of the five valences of nitrogen in ammonium salts was demonstrated by Meisenheimer (*Liebigs Annalen*, CCCXCVII, 273) by means of isomeric substances of the general formula $R_3N(OR^1)(OR^2)$. For example, two isomeric substances having the formula $(CH_3)_3N(OCH_3)(OC_2H_5)$ were found to decompose on evaporating their aqueous solutions quantitatively as follows:

$$\text{A}\quad \begin{matrix}CH_3\\CH_3\\CH_3\end{matrix}\!\!>\!N\!<\!\begin{matrix}OCH_3\ (4)\\OC_2H_5\ (5)\end{matrix} \longrightarrow \begin{matrix}CH_3\\CH_3\\CH_3\end{matrix}\!\!>\!N + CH_2O + C_2H_5OH$$

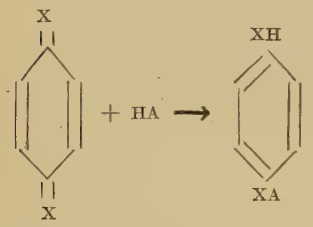
$$\text{B}\quad \begin{matrix}CH_3\\CH_3\\CH_3\end{matrix}\!\!>\!N\!<\!\begin{matrix}OC_2H_5\ (4)\\OCH_3\ (5)\end{matrix} \longrightarrow \begin{matrix}CH_3\\CH_3\\CH_3\end{matrix}\!\!>\!N + C_2H_4O + CH_3OH.$$

A number of compounds containing different alkoxyl groupings reacted similarly. Since four of the five valences of the nitrogen atom in ammonium salts have long since been shown to be equivalent, this furnishes direct experimental evidence of the different character of the fifth valence.

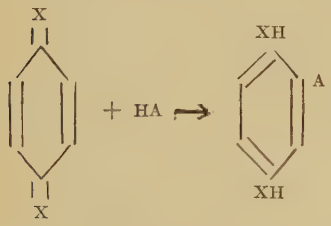
Optically Active Phosphorus Compounds.—Wedekind (*Berichte der Deutsch. Chem. Gesellsch.*, XLV, 2933) obtained evidence that the p-tolyl-phenyl-ethyl-methyl phosphonium grouping was resolved into optically active dextro- and levo-forms. This adds another element to those which have been found capable of forming optically active isomers with asymmetric substituting groups. It also completes the evidence for such compounds of phosphorus as those presented by Meisenheimer several years ago when he resolved mixed phosphine oxides into optically active isomeric substances.

Mechanism of Reactions in Dyestuff Formation.—The chemistry involved in the synthesis of dyestuffs has always been very complicated and difficult to understand. The compounds are generally very complex and the reactions for their formation often seemingly abnormal. Recently A. G. Green (*Jour. Chem. Soc.*, CIII, 925)

has offered a theory for explaining the mechanism of these synthetic reactions in a comparatively simple way. He considers most dyes to be formed through the addition of amines and phenols to quinoid bodies in one or both of two ways: (1) direct addition, under acid conditions, which can be indicated by the general expression,



(2) indirect addition, under neutral conditions,



The benzenoid compounds thus formed can again be changed into quinones by oxidation and undergo either of the above addition reactions. This process of alternating oxidation and reduction may continue until compounds of very complicated molecular structure are formed. As examples, pararosaniline is formed through the oxidation of toluidine and direct addition of aniline, while the indulines and aniline black are formed by oxidation of aniline and both direct and indirect additions. The theory not only furnishes the chemist a means for following the course of the reactions, but also suggests new syntheses, and methods for ascertaining the constitution of many dyes heretofore unknown.

Natural Diterpenes.—Up to the present time the only known diterpenes have been those synthesized in the laboratory. It is, therefore, interesting to note the discovery by Semmler and Rosenberg (*Berichte der Deutsch. Chem. Gesellsch.*, XLVI, 768), in the higher boiling fractions of camphor oil, of two naturally occurring members of this class of compounds. They are α-camphoren, $C_{20}H_{32}$, a monocyclic diterpene, and β-camphoren, $C_{20}H_{32}$, a bicyclic diterpene.

Hydrolysis of Cellulose.—Considerable attention has been given in recent years to the production of fermentable sugar from cellulose. One of the most promising methods for the hydrolysis of cellulose has been lately worked out by Willstätter and Zechmeister (*Berichte der Deutsch. Chem. Gesellsch.*, XLVI, 2401). Ordinary concentrated hydrochloric acid (36 per cent.) will only gelatinize cellulose after acting upon it for some time, while stronger hydrochloric acid (40 per cent.) dissolves it very rapidly and soon changes it completely into glucose. Hydrochloric acid has several advantages over sulphuric acid, which has generally been used in the past, in that it does not form any esters with the polysaccharides and the operation can be carried out without the application of heat.

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BIOLOGICAL AND FOOD CHEMISTRY

CARL L. ALSBERG

Fats and Lipoids.—Much study has been given fats and fat-like substances, or lipoids, particularly plant lipoids. Since plants consist largely of fibrous skeleton the quantity of lipoid obtainable from them is relatively too small to have invited at-

tention until studies on animals showed that lipoids must be as important to plants as to animals. It has been found that the lipoids, of both animal and vegetable origin, contain a variety of basic nitrogenous substances other than cholin, the simplest of these being colamin, or amino-ethylalcohol (*A. Y. B.*, 1912, pp. 634-5), which may be regarded as intermediary between the sugars and the amino-acids or proteins. The occurrence of substances of this type has furnished Trier with a basis for an interesting hypothesis of protein formation in plants, which correlates protein formation with lipoid formation and offers an explanation of the genesis of many bases and alkaloids, as well as of the interdependence of the metabolism of nitrogen and phosphoric acid, both constituents of many lipoids. In this connection it is important to note that sulphur may occur in lipoids as well as in protein and that the lipoid containing sulphur, or sulphatid, described from impure preparations first by Thudichum and then by Koch has finally been obtained in the pure state and found free from phosphoric acid (Levene). Lignoceric acid has been obtained from the brain lipoid, sphingomyelin (Levene). This acid, the structure of which is now known, had been found only in plants. Its discovery in the brain extends the list of substances with large molecules of the type common in plants now known to occur in animals (*A. Y. B.*, 1912, p. 634). Methods have been devised for the determination in tissues and blood of cholestearin, a substance related to the terpenes and found in practically all tissues associated with true lipoids. In consequence it has been possible to study its distribution in the tissues and to correlate it with disease, though these studies have not as yet been brought to any definite conclusion.

The prevalent theory of the nature of cell-membranes, namely that they are composed of lipoids, has been losing ground. It was based largely on observations by Overton that these membranes permitted the passage of substances soluble in lipoids. Ruhland, however, endeavors to show that the permeability of these membranes is dependent upon surface tension. By "surface tension" is meant the peculiar phenomena observed at surfaces. "Capillary attraction" is one of these phenomena. Biologists at present seem inclined to ascribe great importance to surface tension.

Since the lipoid theory of the nature of cell-membranes and the lipoid theory of the action of narcotics are interdependent, the latter is also being discredited. Instead of making the action of the indifferent narcotics such as alcohol and chloroform dependent upon their solubility in fat and lipoids, their effect upon surface tension is being offered in explanation. Indeed, pharmacologists are inclined to explain various poison effects as manifestations of surface tension. However, the theory that narcosis is dependent upon the inhibition of oxidation (Verworn) has found little acceptance (Winterstein, J. Loeb and Wasteneys).

Nutrition, Proteins.—It has long been known that the mere ingestion of food increases heat production. Zuntz assumed this to be due merely to the mechanical processes of digestion, such as the muscular work of the intestines, the activity of the glands and the like. Rubner, on the contrary, held that chemical processes produced the heat without benefit to the cells. Benedict and Pratt have now practically proved Rubner's theory. Further study has magnified the importance of the "vitamines" (*A. Y. B.*, 1912, p. 631). Thus normal life can be maintained on a diet of pure protein, sugar and butter, but not if lard be substituted for butter, apparently because butter, like milk, contains "vitamines" (Osborne and Mendel). It has been shown that by the use of such restricted diets the susceptibility of rats and mice to tumors and the rate of growth of tumors may be influenced (Sweet, Corson-White and Saxon). London has shown that dogs may be kept in good condition on a bread and milk diet after removal of the stomach and all the intestines except the duodenum and ileum. Valuable new methods have been devised for the determination of uric acid (Folin and Denis) and of urea (Marshall). Ac-

cording to our present knowledge ingested proteins are practically completely dismembered within the intestines and stomach into their component amino-acids. The amino-acids are absorbed into the blood, from which they are rapidly removed without immediate change by absorption into the tissues. Of all the tissues the muscles absorb least and the liver most. However, these acids never completely disappear from the blood. A condition of equilibrium seems to be established between blood and tissues. Though the tissues absorb amino-acids it is not possible very greatly to increase their store of them. The amino-acid content of the tissues is fairly constant both on a nitrogenous diet and in starvation. When animals retain nitrogen it is as body protein, that is, as flesh and tissue, and not to any great extent as amino-acids or other products of digestion. The excess of amino-acids in a nitrogenous diet is converted into useful non-nitrogenous material by the liver, which removes the nitrogen in the form of urea. The hypothesis that the muscles take the lead in the formation of urea has not been substantiated. In regard to the formation of protein by animals it is probable that since each tissue has its own small store of amino-acids, which it can replenish from the blood, it uses these to build its own peculiar proteins. During starvation the amino-acids are supplied by the self-digestion of the protein in the tissues themselves, a process which is technically known as autolysis. It is significant that it has just been shown that this process is not accompanied by the formation of ammonia (Levene and Meyer) and that therefore there is no coincident waste of amino-acids.

Carbohydrates or Sugars.—That there are close metabolic relationships between amino-acids and glucose is certain (Lusk and Ringer). Dakin has shown that many, but not all, of the amino-acids found in proteins are readily converted into glucose. It is possible to convert at low temperatures α-amino- and α-hydroxy-acids into α-ketonic aldehydes. Lactic acid and alanin, for example, yield methylglyoxal. Methylglyoxal is acted upon by enzymes named "glyoxylases," present in the animal body, with the formation of d- and l-lactic acid. This reaction is reversible. Methylglyoxal is believed, therefore, to be an intermediate product in the mutual interconversion of alanin, lactic acid and glucose (Dakin and Dudley). These observations must modify present views of the metabolism of sugars and the mechanism of fermentation. The enzyme reactions involved are of interest not merely because they are reversible, but also because they may lead to the formation of optically active products from inactive substances (Levene and Meyer). A similar synthetic enzyme reaction, the formation of optically active mandelic acid by emulsin, has been imitated by means of a simple catalyzer, quinine (Bredig). While this might be regarded as the long sought for artificial asymmetric synthesis, it must be pointed out that the quinine used as catalyzer is optically active. The constitution of chondroitinsulphuric acid, the characteristic component of many structural tissues like cartilage, is now known. It contains glucuronic acid, a sugar acid widely found in metabolism, and acetyl glucosamin (Schmiedeberg, Levene and Laforge). Dextrines are decomposition products of starch used in the arts as adhesives. By studying the crystalline dextrines of Schardinger, Pringsheim was able to show that within the starch molecule the molecules of sugar are arranged to form rings. These rings are probably not present in cellulose, which is constructed from the same sugar. Cellulose has finally been completely converted into glucose by Willstätter and Zechmeister through the use of a new cellulose solvent, very strong hydrochloric acid.

Lower Animals and Plants.—The element vanadium seems to be widely distributed in the blood cells of ascidians, and to be responsible for some of the coloration of these animals. In certain species the blood cells contain free sulphuric acid, in others the cellulose mantel (Henze). The active agent of the poison glands of the octopus has been found to be paroxyphenylamin, a simple derivative

of the amino-acid, tyrosin (Henze, Baglioni). The active principle of the venom of the Gila monster is not protein (Alsberg). That *Bacillus pyocyaneus* and a number of other microörganisms growing upon protein produce hydrocyanic acid is a most remarkable discovery of great importance medico-legally (Emerson, Cady and Bailey, Clawson and Young). Hence, much of the work on the distribution of hydrocyanic acid in plants will have to be repeated because it was not done under sterile conditions. Toxic amounts of muscarine have been found in a number of mushrooms not previously supposed to contain it (Ford, Clark). It has been found that certain common molds of the genus *Penicillium* produce substances similar to lichen acids, one of which is moderately toxic (Alsberg and Black). This may be significant in connection with the unwholesomeness of moldy food.

Food and Drug Legislation and Regulations.—On March 3 an amendment to the Federal Food and Drugs Act was enacted providing that all foods in package form must bear upon the label a plain and conspicuous statement of the net contents either by weight, by volume or by numerical count. The act went into effect at once but provides no penalty for violations for 18 months from the date of enactment. Rules and regulations for the enforcement of the act will be promulgated by the Secretaries of the Treasury, Commerce and Agriculture. The passage of the Tariff act has resulted in the transfer of the examination of imported meats and meat products from the Bureau of Chemistry of the Department of Agriculture to the Bureau of Animal Industry of the same Department. Regulation 39 has been abrogated and the Bureau of Chemistry has been given control of meat and meat products actually in interstate commerce. State legislatures have been quite active directing their attention to laws requiring labeling of the quantity of the contents of food packages and controlling cold storage.

Court Decisions.—The Supreme Court of the United States has handed down a decision against the State of Wisconsin in the case of the State of Wisconsin *v.* George McDermott & T. H. Grady (228 U. S. 115), defining an "original unbroken package" and fixing the powers of the states over food and drug products in interstate commerce. The first prosecution under the amendment to the Food and Drugs Act for the control of medicines labelled with "false and fraudulent" therapeutic claims (*A. Y. B.*, 1912, p. 636) was won by the Government. The effect has been vastly to improve the labelling of proprietary medicines generally, and the Department of Agriculture and the Department of the Treasury have been able to exclude from entry medicines misbranded under the amendment. In consequence of court decisions mixtures of bran and screenings are now properly labelled and the adulteration of grain with weed seeds is not practiced as extensively as formerly.

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SANITARY CHEMISTRY

E. M. Chamot

Enforcement of Pure Food Laws.—During the year 1913 no noteworthy changes in methods of food or water examination or their applications have been made, nor have any entirely new important additions been proposed, but the number of samples of foods and beverages suspected of non-compliance with pure food and drug laws which have been analyzed or tested has been extraordinary, thus emphasizing the interest and activity in the enforcement of public health measures. The sanitary chemist has thus been able to influence the passage of many greatly improved pure food measures and in a number of states has brought about better modes of enforcement of the statutes. It is safe to say that never in our history have labels placed upon foods so truly set forth their actual composition and amount, nor has the public been so well informed as to the qualities of the beverages they drink.

Food.—Among those foods which have received such a degree of investigation with reference to their compliance with pure food laws as to warrant their special mention, we may place flour, especially bleached and graham flours; sweet chocolate, with special emphasis upon milk chocolate; and candies, particularly those with bright glossy surfaces due to varnishing with shellac or other similar gums; gums which in their preparation in the Orient have usually received an addition of sulphides of arsenic to give the desired yellow or orange tint.

Beverages.—The most important of the investigations of this class of food material is doubtless that directed against sodas, pops, ginger ale, root beer, etc. Heretofore the activity of the chemist has been directed chiefly against the artificial flavor and the preservatives employed, rather than against the dispensed beverage. It is, of course, nothing new that much of the material passing over the counter of the soda fountains is abominable and in direct violation of existing statutes, or at least of common-sense hygiene. Of the questions involved in these beverages, that of the influence upon health of the foam-producing substances added has aroused the greatest diversity of opinion. The materials usually employed, soap bark or saponin-like substances, are known usually to contain, unless specially treated, substances of a decidedly poisonous nature, even in moderately small doses. The question at issue is whether the small amount of material necessary to produce a persistent foam, when improperly prepared, may be considered as a menace to health. Manufacturers and dealers claim no harm can result. Conservative sanitarians take but one view, that no toxic principle should be allowed in foods or beverages. In view of the fact that other and less objectionable foam-producing substances are available, it is believed by many that this question is not debatable. In all beverages which have much foam or froth as dispensed in glasses (beer, ale, etc., as well as soda), the amount of "foam" or "froth" is a measure of the increased profit of the dealer, hence any attempt at control

on the part of health authorities meets with vigorous opposition from the trade.

Water Purification.—The most noteworthy fact in the field of potable water investigation has been the remarkable world-wide extension of calcium hypochlorite disinfection methods. As was to be expected, a number of waters have been found in which the "bleach" treatment proved unsuccessful or where bad odors and tastes apparently could not be prevented even under careful supervision.

The increased production of liquefied chlorine by American chemical companies at a reduced cost has turned attention to the superiority of chlorine over bleaching powder as a means of disinfecting water supplies. There is claimed for the liquid chlorine treatment, far greater ease and accuracy in the control of the application of the disinfectant, less trouble from bad odors and tastes, absence of sludge, increased bactericidal power, and decreased cost. Reports upon the cost of treatment by chlorine claim an expense under $2 per million gallons treated.

Although the wisdom of bleach or chlorine application alone as a permanent treatment is still seriously questioned by a number of sanitarians, all agree that there is no doubt whatever of its inestimable value as an emergency measure, and its certainty as a means of checking or preventing an epidemic of water-borne continuous enteric fever, as demonstrated in a very large number of critical conditions during the year.

Quite extensive investigations upon various "permanganate" methods of water treatment have been made in Europe, but there is little evidence that these can be successfully developed so as to be practically applicable upon the large scale necessary for the purification of municipal water supplies.

The "dry feed" system of coagulant application for rapid or mechanical filters has received increased study and consideration. Though not yet perfected, this system bids fair in time to supersede the more cumbersome method of first dissolving the coagulant in water and then applying the solution. The advantages to be gained by dry feed are a greater compactness of installation, far greater range and ease of adjustment of dosage, absence of large, leaky and unsightly tanks, and the elimination of systems of distributing pipes constantly giving out through clogging or corrosion.

The main interests in methods of water disinfection are at present divided between the chlorine and ultraviolet rays treatment. No new light has been thrown upon the mechanism of the latter reaction, nor have any further agencies besides those already reported been found interfering with their germicidal power. Several improvements in the construction of ultraviolet lamps have been made, and a more extended application of this system to the treatment of effluents from rapid and roughing filters seems to be probable.

The waste waters from creameries, milk stations, etc., often giving rise to an intolerable nuisance, which have thus far been found to be untreatable by septic tanks and contact beds, may be successfully treated by the iron-lime method and aeration, followed by sedimentation. The sludge rapidly settles, yielding a clear limpid supernatant liquid devoid of odor, while the sludge itself is easily removed and disposed of.

Ventilation.—The very thorough analyses of air made in the investigation of the ventilation of the public schools of New York City by the Baskerville-Winslow commission have again confirmed the fact that so-called bad ventilation is far more often the result of too high temperatures and humidities than of a marked rise in the carbon dioxide content of the air. It was also found that the quantity of dust in the air of school rooms was no greater, and in most instances less, with windows open than with windows closed, even with so-called forced drafts of "filtered" air. A search for proof of the existence of what has been termed "crowd-poison," that is, the presence in the air of volatile toxic organic compounds thrown off by the lungs of human beings, proved negative, but the experiments are too inconclusive to warrant the assumption that such poisons are never present.

The evidence now at hand, therefore, indicates that the sense of oppression felt in a crowded room is due to too high temperature and moisture of the air, and an offense of the æsthetic senses resulting from odors and from a feeling of crowding. Comfort is restored by lowering the temperature and humidity and by keeping the air in circulation. When much dust is present, as in factories, taking the air from the rooms and forcing it through water in "washers" or "scrubbers" and sending the air thus treated back again to the operating rooms has proved very satisfactory. (See also XXX, *Public Health.*)

AGRICULTURAL CHEMISTRY

WILLIAM H. ROSS

Soils.—That the chemistry of the soil in its relation to crop production is more difficult and complex than was at one time supposed is now generally recognized, and the importance of physical and biological studies in arriving at an understanding of the problems of soil fertility is now conceded, but there still exists considerable difference of opinion regarding the economic value of the commercial fertilizers and the form in which they should best be applied. This is due in a large measure to the fact that the results obtained from experiments carried out on a small scale, and under special conditions of farming, are often quoted as applying to the whole country, and to farm operations of an entirely different type. The obvious conclusion to be drawn from this discussion is that it is sometimes profitable to use certain fertilizers and sometimes not, and it unfortunately still remains necessary for the progressive farmer to test out in his own particular case what fertilizers are the most profitable, and in what form and to what extent they should be used.

The chemical, physical, and biological changes which are produced in soils through sterilization have of late formed the subject of a number of investigations. Schreiner and Lathrop (Bureau of Soils, Bull. 89) observed that when soils are steam heated there is an increase in water-soluble constituents and also an increase in acidity. At the same time ammonia and amines are formed, and likewise a number of organic compounds which have been isolated, and which have been shown to be beneficial to plant growth. The heating process, however, also brings about an increase in dihydroxystearic acid when present, and produces it when not previously present. This compound is harmful to plant growth, and although the majority of the compounds formed must be classed as beneficial, the harmful compound formed at the same time more than overbalances their effects, as shown by cultural tests in the soils examined and their extracts, which showed poorer plant growth in the heated soils. It is pointed out that not until the harmful compound is eliminated through oxidation, cropping, liming, or use of nitrates, can the beneficial effects of heating be demonstrated.

In making a study of the effect of sterilization on the productivity of the soil, Stone (Mass. Agr. Exp. Sta., Public Doc. 31) observed that sterilization gives beneficial results with certain soils rich in organic matter, while other soils deficient in this respect may be made less productive by this treatment. It is considered that the benefits resulting from sterilization are largely chemical in nature, and that part of the stimulating effects produced may be due to the renovation of the gases contained in the soil. To chemical stimulation is also attributed the increase in the number of bacteria which takes place in sterilized soil.

Russell and Hutchinson, however, have given a different view regarding the development of bacteria in soils. They maintain that the number of bacteria is limited by protozoa in the soil which feed upon them, but which are destroyed when the soil is heated to 60 deg., and as a result the bacteria are then enabled rapidly to increase. Other investigators are of the opinion that protozoa have little or no part in limiting the number of bacteria in soils. The obvious conclusion to be drawn from these different views is that chemical, physical and biological changes are produced in soils by sterilization, and that whether the

resultant effect is good or bad depends on the particular soil treated.

According to the theory advanced some time ago by Loew, plants are enabled to make their maximum growth, other factors being favorable, only when the available lime and magnesia are present in a certain ratio. Exception is taken to this view by Gile and Ageton (*Jour. Ind. and Eng. Chem.*, V, 33), who have made field observation in soils planted to pineapples and sugar cane. Some of the soils examined showed a tremendous excess of lime over magnesia, but were nevertheless very productive. Moreover, some soils which were found to contain low lime to magnesia ratios, as called for by theory, were productive, while others were not. Following the criticism made by Loew that the pineapple is a lime-loving plant and is capable of precipitating as oxalate the excess of lime carried into the plant, experiments were also made with beans planted in plots of the same soil to which varying amounts of lime were added so as to increase the lime-magnesia ratio from 0.8 to 14.1, the optimum ratio according to theory being 2.5. The largest yield, however, was obtained from the soil containing most lime, and the calcium content of these plants did not exceed that of the plants grown in the soil containing least calcium. It is therefore concluded that in the analysis of ordinary soil the ratio of lime to magnesia is of no significance.

Fertilizers.—The sale of commercial fertilizers in the United States during the year amounted to approximately $120,000,000, an increase of about 15 per cent. over that given in the census report for 1909. The basis of the fertilizer industry is the preparation of phosphorus carriers, of which by far the most extensively used is the superphosphate of calcium. The marketing of phosphoric acid in this form has the disadvantage, however, that so much sulphuric acid has to be added to the phosphate rock in the preparation of the superphosphate that the phosphoric acid content of the resulting product is reduced to one-half that present in the original rock. Considerable activity is now being displayed in making investigations with a view to preparing phosphoric acid for the fertilizer trade in a concentrated rather than in a diluted form, and it is reasonable to expect that success along this line may ultimately be obtained.

In common with the rest of the world the United States still relies on supplies of potash salts from the Stassfurt mines in Germany. As a result of the search for sources of potash which has been continued by the Bureau of Soils during the past three years, there is every reason to look forward to a domestic supply in the near future. Of the possibilities in this direction, the giant kelps of the Pacific Coast, to which reference was made last year (*A. Y. B.*, 1912, p. 642), seem to offer most. A survey has been made of the principal kelp beds from and including Puget Sound to the Cedros Islands off Mexico. They aggregate 230 sq. miles, and at a very conservative estimate should be capable of yielding 22,000,000 tons of wet kelp, or about 825,000 tons of potassium chloride. Dried kelp contains on an average about 25 per cent. of potassium chloride, 0.2 per cent. of iodine, and about 1.5 per cent. of nitrogen. About 6.6 tons of wet kelp are required to produce one ton of dry kelp. (Cameron, *American Fertilizer Hand Book*, 1913, p. 52; *Jour. Franklin Inst.*, CLXXVI, 347.)

A comparative study of the various patented processes which have been proposed for the extraction of potash from silicate rocks shows that none of these can prove economical unless there can be obtained at the same time some other product of value in addition to the potash (Ross, *Jour. Ind. and Eng. Chem.*, V, 725). It was found that when one part of feldspar and three parts of calcium carbonate are ignited, as in the manufacture of cement, the potash is volatilized, while the residue has the composition required of Portland cement. Since the clay or shale used in the manufacture of cement contains small quantities of potash, it should follow from these observations that there should be considerable concentration of potash in the flue dust. This has been observed to be the case, and experiments are now being undertaken on a larger scale to determine the practicability of recovering potash

from feldspar by its use as a substitute for clay in the manufacture of cement.

Many investigations are now being carried on in this country and abroad with a view to reducing the cost of nitrogen fertilizers by finding new or improved methods of fixing nitrogen. The several investigations which are being carried on in this country are along the line of reduction processes whereby there is formed ammonia, or nitrides, rather than oxidation processes as practiced in Norway, where nitric acid is being produced on a large scale. Up to the present no commercial plant for the manufacture of "atmospheric nitrogen" products has yet been established in this country. Such plants, however, are now being operated not only in Norway, but also in several other European countries, and likewise in Canada, at Niagara Falls, where nitrogen is being fixed in the form of calcium cyanamide. (See also *Electrochemistry* and *Industrial Chemistry and Chemical Engineering, infra.*)

Plant Chemistry.—Considerable interest is still being manifested in the stimulation of plants by chemical and physical means. Among the various physical agents which are being used in this connection may be mentioned electricity, ultraviolet light and radioactive rays. From the various experiments which have been made in this country and abroad with the rays of ultraviolet light, and of the radioelements, it would seem that rays of a certain intensity favor, but stronger rays retard, the germination of seeds and the growth of plants. Numerous experiments have also led to the general conclusion that electrical currents in the soil are injurious to the development of plants. This is explained on the assumption that the protoplasmic membrane loses its semipermeable nature under the influence of the electric current and permits the electrolytes and albuminoid substances to escape from the cells. Results of a more favorable nature are obtained when the electrical potential of the atmosphere is increased by the use of static charges. Thus Stone (*loc. cit.*) has observed that both positive and negative charges accelerate seed germination and growth of seedlings, but that the positive causes greater acceleration than the negative charges as measured by the growth of hypocotyl and radicle.

In continuing his work on the artificial ripening of dates, Vinson has observed that while chemical methods of ripening give best success with the more reactive varieties, the process of heating gives a larger yield with varieties which are less reactive. The use of acetic acid and nitrous ether in the artificial ripening of dates, as referred to last year (*A. Y. B.*, 1912, p. 643), has been replaced by carbon dioxide with identical results. While the carbon-dioxide method may prove more expensive, it is considered that its use will be free from certain objections attending the use of the other chemicals. After the fruit has been stimulated by carbon dioxide, the application of gentle warmth greatly shortens the time required for perfect ripening.

About 80 per cent. of the protein of the alfalfa plant, when cut in blossom, is in the leaves (Ames and Boltz, Ohio Agr. Exp. Sta., Bull. 247). The nitrogen content is less in the second cutting than in the first or third, but a greater proportion of it, amounting to about 77 per cent. of the total, is combined as protein in this cutting. The extent to which the food elements of alfalfa may be removed by rain was shown byt he fact that on treating dried alfalfa with water 50 per cent. of the nitrogen and 75 per cent. of the phosphorus were dissolved.

Dairying.—A study of the chemical changes produced in milk by pasteurization has been made by Rupp (Bureau of Animal Industry, Bull. 166). It was found that when the pasteurization was carried out by the holder process at 62.8 deg. for 30 minutes, no appreciable chemical change takes place. At this temperature the soluble phosphates of calcium and magnesium do not become insoluble, and the albumin does not coagulate. At 65.6 deg., however, 5.75 per cent. of the albumin is rendered insoluble, and this amount increases with further increase in temperature. The time required for coagulating the casein by rennin is slightly less in milk pasteurized at temperatures up to 65 deg.; at 70 deg. there is a slight

retardation, but at 75 deg. the time is almost doubled. The acidity is decreased in a slight proportion in pasteurized milk.

The numerous investigations which have been made in Europe on the bactericidal action of ultraviolet rays, especially in the sterilization of drinking water, have led to a research by Ayers and Johnson (*Jour. Washington Acad. of Sciences*, III, 160) on the action of these rays in sterilizing milk. By this treatment there resulted bacterial reductions as great as by pasteurization, but it was not found possible to bring about complete sterilization by means of the ultraviolet rays. It was observed, moreover, that the rays do not exert a selective destructive action, as in the case with heat, so that this process would not afford the same security as does proper pasteurization. Furthermore, exposure to the rays imparts a disagreeable flavor to the milk. The process is therefore not considered a promising one for commercial application.

It has been shown by Van Slyke and Bosworth (N. Y. Agr. Exp. Sta., Tech. Bull. 26) that when casein is treated with rennet-enzyme the casein molecule is split into two molecules of paracasein. The molecular weight of the former is 8,888 with a valency of eight, while the latter has a molecular weight only half as great with a valency of four. Both compounds were prepared base free with an ash content of only 0.06 per cent. Casein forms four compounds with calcium containing 2.5, 1.5, 0.44, and 0.22 per cent. of calcium, and called, respectively, basic, neutral, bi- and mono-calcium caseinate. The last only is insoluble in water, but becomes soluble in a five per cent. solution of sodium chloride. Evidence is given to show that the protein formed during the manufacture and ripening of cheddar cheese, and of many other kinds of cheese, and which is soluble in a warm five per cent. solution of sodium chloride, is mono-calcium caseinate. Paracasein also forms four compounds with calcium corresponding, and having similar properties, to those of casein. They differ from the latter in having just twice as much of the basic element.

ELECTROCHEMISTRY

G. A. Roush

The general progress in the field of electrochemisty during the year has been quite satisfactory, both from a technical and from a scientific standpoint, as may be judged from the fact that the American Electrochemical Society has closed the most successful year in its history, and has begun another that promises to be a still more pronounced success.

Electroplating.—The review of the entire field of commercial electroplating, made by the American Electrochemical Society and published in Volume XXIII of its *Transactions*, has not only added some very valuable compilations to the literature of that subject, but has also stimulated investigation along this line that will no doubt bring to light interesting and valuable data. See, in this connection, F. C. Mathers, Advance Papers for *Trans. Am. Electrochem. Soc.*, XXIV and XXV.

Fixation of Atmospheric Nitrogen.—The fixation of atmospheric nitrogen, already a development of wide commercial importance, is being still further advanced by Haber and Le Rossignol's experiments on the production of ammonia from nitrogen and hydrogen, and also by Serpek's experiments on the production of aluminium nitride from bauxite (crude aluminium ore) and atmospheric nitrogen. The aim of the Serpek process is the conversion of crude bauxite and atmospheric nitrogen into aluminium nitride, which can then be decomposed, giving an ammonium salt and a pure alumina for use in the production of metallic aluminium. The Ostwald process for the conversion of ammonia to nitric acid by chemical means is proposed for use in connection with the manufacture of ammonia from cyanimide, and the process would probably serve equally well in connection with the Serpek process.

The plants for the production of nitric acid from the air and for the production of cyanimide for fertilizer purposes from calcium carbide and atmospheric nitrogen have been greatly increased in capacity during the year. The energy utilized in the former now amounts to about

240,000 h. p., confined almost entirely to Norway. There has recently been started the first nitrate plant in the United States, utilizing 4,000 h. p. The power being utilized in the production of cyanimide in this country is at present being practically doubled. (See also *Industrial Chemistry and Chemical Engineering, infra;* Haber and Le Rossignol, *Met. and Chem. Eng.*, XI, 211; J. W. Richards, *Trans. Am. Electrochem. Soc.*, XXIII, 351, and *Met. and Chem. Eng.*, XI, 137; S. A. Tucker, *ibid.*, 139, and *Jour. Ind. and Eng. Chem.*, V, 191; S. A. Tucker and H. L. Read, *Trans. Am. Electrochem. Soc.*, XXII, 57; and S. A. Tucker and Y. T. Wang, *ibid.*, 67.)

Electrometallurgy of Iron and Steel.—The application of the electric furnace to the metallurgy of iron and steel is continually being broadened. As the conditions necessary for the purification of steel in the electric furnace became better known, the cost of production decreased, until now high-grade steels, equivalent in quality to crucible steel, can be made in the electric furnace on a large scale and at a lower price than crucible steel. Recent statements show that there are at present in Europe 112 electric furnaces for the manufacture of iron and steel, and in the United States 19 furnaces. (R. Amberg, *Trans. Amer. Electrochem. Soc.*, XXII, 133; A. E. Green, *ibid.*, 123; C. H. Vom Baur, *ibid.*, 117.)

The electric reduction of iron is certainly no longer in the experimental stage. It is meeting the requirements in the localities where it has been introduced, and for some uses the electric furnace produces a more suitable metal than the blast furnace. For example, electric-furnace pig iron can be made much lower in impurities than ordinary blast furnace pig iron, which makes it much easier to convert into steel in the open-hearth furnace.

The electric iron smelting furnace at Trollhättan, according to a writer in *Engineering* (XLIV, 395-7, 630-5), has been modified to use round electrodes 600 mm. in diameter, and apparatus has also been added to purify the gas by washing. The furnace uses 1,749 kw. hr. to produce 1,000 kg. of iron, an efficiency of 74.39 per cent. The consumption of charcoal is only 35 to 45 per cent. of that required in the blast furnace. As a result of the successful operation of the Trollhättan furnace, three other furnaces have been built in Sweden, the four using 12,000 h. p.; in Norway there is one 3,500 h. p. furnace in operation, and three 3,000 h. p. furnaces are under construction; in Switzerland a 2,500 h. p. furnace is being built; these, with the two California furnaces, one of 2,000 h. p. and the other of 3,000 h. p., make a total of 32,000 h. p. for use in the electric reduction of iron.

Lyon (*Met. Chem. Eng.*, XI, 15-19) compares Scandinavian practice with the electric iron furnace with California practice. The main differences are that in California no attempt is made to secure any reduction in the stack of the furnace, there is no circulation of the furnace gases, and the limestone used is calcined outside of the furnace. Further details on the operation of the California furnaces are given by Crawford (*ibid.*, 383-8). The minimum power consumption under present working conditions is given as 2,200 kw. hr. per ton of pig iron. The efficiency is not quite so high as the Swedish shaft furnaces of the same power rating, but the extension of the length of the furnace is expected to remedy this, since the end electrodes work at a lower efficiency than the electrodes in the center of the furnace, due to the increased radiating surface.

The size of units in use is constantly increasing. Most of the Scandinavian furnaces are rated at 3,000 h. p., but it is reported that the A. B. Elektrometall has completed the design of a 7,500 h. p. furnace. The California experiments have led to the development of a furnace rectangular in shape, with the electrodes in a straight line, and it is thought that it will be possible to increase the length of this furnace indefinitely, as has been done with the modern rectangular copper blast furnace.

Electrometallurgy of Zinc.—The prospects for the commercial application of the electric furnace to the metallurgy of zinc in this country

become every year more and more promising. On account of the low cost of power, the Scandinavian countries have progressed further in the commercial application of electric zinc smelting than have any of the other countries. There is one plant in Sweden and one in Norway, and it has been recently reported that a plant has been started in Finland, using 2,500 h. p., which is to be increased later to 6,000 h. p. In the *Australian Mining Standard* (May 22, 1913, abstract in *Met. Chem. Eng.*, XI, 463) it is stated that the Sulphide Corporation has constructed at Cockle Creek, N. S. W., a 500 h. p. electric furnace for the electric smelting of zinc, combined with the manufacture of sulphuric acid and superphosphate.

A recent report of the directors of the Hydraulic Power and Smelting Co., Ltd., gives the following information in regard to Scandinavian zinc smelting. The capacity of the works at Sundlokken (Sarpsburg, Norway) has been increased from 8,000 to 10,000 tons per annum, and contracts for the sale of the entire production of 1914 have been made under terms giving a satisfactory profit. The erection and equipment of a new plant at Trollhättan, Sweden, is being pushed as rapidly as possible, and 13 furnaces of 1,000 h. p. and eight of 500 h. p. have been installed. Five more 1,000 h. p. furnaces will be built.

The problem of electric zinc smelting is being studied in Canada under the direction of Stansfield and Ingalls, under a grant from the Canadian Government, but no recent publications have been made by them. The leading investigators in this country are Johnson and Peterson, both of whose processes are described in considerable detail in papers presented at the Denver meeting of the American Electrochemical Society in September (*Transactions*, XXIV).

Electric Furnaces and Electric Furnace Products.—The possibility of the application of the electric furnace to the metallurgy of the rarer metals, such as chromium, tungsten, molybdenum, vanadium, and uranium, is being investigated, with considerable promise, but definite results are not yet available. (D. A. Lyon and R. M. Keeney, Advance Papers for *Trans. Am. Electrochem. Soc.*, XXIV.) The reduction of nickel and copper ores has also been carried out in the electric furnace with a fair amount of success. So far as the current literature shows, there are no copper ores being treated at the present time in the electric furnace in this country. Trial smeltings of copper in a 1,000 h. p. furnace with an estimated production of 2,000 tons per annum have been reported from the Ilen Smelting Works at Trondhjem, Norway, but no detailed data concerning these experiments have been found. (M. Stephan, *Metall und Erz*, X, 11-17, 84-86, and *Met. and Chem. Eng.*, XI, 22.)

The growing use of carborundum as a refractory material has given added importance to this already valuable electric-furnace product, its value being due to its high heat conductivity and its resistance to very high temperatures. Silit is another electric-furnace compound similar to carborundum, which has recently been placed on the market.

A few years ago silicon was a chemical curiosity, and was listed in the chemical catalogues at a price equivalent to about $500 a pound. In 1903 an electric-furnace process was developed for its manufacture, with the result that in a short time the metal was being sold in carload lots at six cents a pound, to be used in the manufacture of steel. Recently, methods have been perfected by which the metal can be cast into chemical apparatus and machinery, giving a material of great value in the chemical industries on account of its resistance to corrosion by acids.

Electrolysis.—According to Dr. Allmand (*Met. and Chem. Eng.*, XI, 19-21), the most important advances made in late years in the technical electrolysis of alkaline chlorides for the production of caustic alkali and chlorine are due to Dr. Jean Billiter, privat-docent in the University of Vienna. Some years back he designed a diaphragm cell, and recently he has invented a modified form of the bell-jar cell, which is one of the most efficient cells now operated commercially.

The increasing importance of the cyanide process in the metallurgy of gold and silver makes of interest investigations on the electrolytic regeneration of the cyanide solutions, particularly in view of the recent abandonment of the Clancy process, the last electrochemical process for this purpose tried out on a commercial scale, and attempts are now being made to locate the difficulties in such processes (E. F. Kern, G. H. Clevenger, and M. L. Hall, Advance Papers for *Trans. Am. Electrochem. Soc.*, XXIV).

INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING

James R. Withrow

The year 1913 has seemed like a lull in the publicity of progress in the field of industrial chemistry and chemical engineering. This has doubtless been owing to the fact that it followed directly on the heels of the eighth International Congress of Applied Chemistry held in America in 1912. On this account many announcements of industrial chemical progress were stored up for the Congress, and following it there has been a natural silence, especially upon the topics of greatest interest which secured most extended consideration and discussion before the Congress. The usual forward strides in this general field, however, have not themselves slackened, and a few points here and there are of general interest and indicate the trend of progress.

Alumina and Aluminium from Clay.—It has long been known that ordinary clay is a storehouse of aluminium. The unlocking of the door has not, however, proven easy or satisfactory. Some alum, a common compound of aluminium, has been made by treating clay with sulphuric acid. The combination of the aluminium with the silica of the clay has resisted satisfactory attack and the presence of iron in the clay has rendered the making of a pure alum difficult. While alum is an important industrial material, it is considerably overshadowed in this respect by alumina, the oxide of aluminium, the pure form of which is the basis for the production of metallic aluminium itself. The production of aluminium is entirely an electrochemical industry. The raw material, which must be pure alumina, has hitherto been made from bauxite, and the process of purification has been difficult and tedious.

The common distribution of clay has always made it an attractive possibility as a source of alumina. A new process mixes clay with common salt as a reagent and enough powdered charcoal to make the mass porous and therefore easily permeable to gas and vapor. The mixture, as a stiff paste, is squirted from suitable dies, giving a product in appearance and cross-section like the ordinary electrical clay hollow-ware or conduit brick. These tiles or bricks are loaded on cars and drawn through a drying furnace. They are then drawn slowly through a long tunnel-like furnace, where they meet a current of water vapor in an oxidizing atmosphere. The products produced are a compound of sodium (from the salt), aluminium and silica, together with hydrochloric acid, which is volatile and is collected in a condensing system at the end of the tunnel. The product left on the cars is heated with lime in a rotary kiln, and there results a mixture containing calcium silicate and sodium aluminate. The latter is water-soluble and can be readily leached out of the mass; after simple purification, the alumina is precipitated by suitable means and caustic soda is left, which needs only a little evaporation to prepare it for the market. A plant is about completed for the commercial perfection of this whole process and has been in partial operation for some time. If it becomes a success, the cost of aluminium production may be reduced as much as four or five cents a pound. The breaking up of clay in this general way has been attempted many times in the past, with indifferent success. The secret of the present satisfactory method is the simple expedient of keeping the mass of clay and salt porous with charcoal, so that the gas or vapors penetrate easily; the reaction is complete in one-ninth the time it otherwise would take. The great quantities of cheap hydrochloric acid and sodium hydroxide produced by the new process would have a mate-

rial cheapening effect on a number of industries, such as the manufacture of soap and fertilizers. The calcium silicate obtained in the process can be used in glass making or converted into hydraulic cement. Some of the ideas utilized in the new process seem applicable to the recovery of potash from feldspars for fertilizing purposes and in making potash alum. The new process is the product of the fertile brain of Alfred H. Cowles, whose inventions with the electric furnace are the basis of the modern electrothermic industries of aluminium, carborundum, calcium carbide, and phosphorus. (See Alfred H. Cowles, "Cheaper Alumina and Aluminium from Mineral Silicates," *Jour. Ind. and Eng. Chem.*, 1913, p. 331, and *Met. and Chem. Eng.*, 1913, p. 140.)

Alumina and Nitrogen Fixation.—A new process being tried on a commercial scale in France, and receiving much discussion in this country, is the Serpek process for the production of ammonia from atmospheric nitrogen by the aid of bauxite, with pure alumina as a by-product. Any extended application of this process for ammonia production would mean a large concurrent production of alumina. This makes it at once a rival of the Cowles process from clay. The advantage in respect of energy consumption and cheapness of material is easily with the Cowles process. While the Serpek process finds a readier market for its products, it may, however, easily overdo the matter in alumina production, since cheap ammonia has such an enormous field in the manufacture of fertilizers and explosives. The Serpek process starts with bauxite, a hydrated oxide of aluminium with some iron and silicon. The bauxite is rendered anhydrous and highly heated by burning the waste gases of the process in a rotary tube through which the bauxite is passing. The hot product is mixed with carbon and passed through a second rotary tube heated in one portion by electrical means to about 1,800 to 1,900 deg. C. Through the tube is simultaneously passing the gases from a gas producer, a mixture of one-third carbon monoxide and two-thirds nitrogen. The latter reacts with the mixture of calcined bauxite or impure alumina and carbon, forming aluminium nitride and carbon monoxide; the latter enriches the remainder of the producer gas and is burned in the first tube, thus drying and calcining the fresh bauxite. The aluminium nitride thus produced is treated with water or caustic soda for the liberation of ammonia. Alumina is then obtained in a very pure form from the residue. Some scientific and economic phases of the process remain to be cleared up, but these should be settled by present commercial tests. (See Jos. W. Richards, "The Serpek Process," *Met. and Chem. Eng.*, 1913, p. 137; Samuel A. Tucker, "Relation of the Production of Alumina to Nitrogen Fixation," *ibid.*)

Oxidation of Ammonia to Nitric Acid.—The revival of interest in the chemistry of nitrogen occasioned by the needs of agriculture and the success of the efforts at the utilization of atmospheric nitrogen has brought forward two old proposals in a novel partnership. The old Ostwald process for oxidizing ammonia to nitric acid with atmospheric oxygen in hurried contact with smooth platinum, although it was operated on a factory scale at times, never made much headway because its raw material, ammonia, was too costly. The commercial production of ammonia from nitrogen and hydrogen by the Haber process (*A. Y. B.*, 1912, p. 646) and the possibilities in the Serpek process at once suggest the commercial rehabilitation of the oxidation of ammonia to nitric acid. It has been known for some time that calcium cyanimide will react with water with the formation of calcium carbonate and ammonia. It is now suggested to unite this last method with the old Ostwald process, and preparations have already been made to exploit the combination commercially. The main disadvantage of the Ostwald process was the fact that it gave only 53 per cent. acid. This defect is not so serious now as it was in the early days of the process. Since that time there has arisen in the manufacture of explosives a great demand for ammonium nitrate. This material can be made very satisfactorily from the Ostwald nitric acid by adding to it an additional amount of the ammonia from which it was pro-

duced, and evaporating to crystallization.

The Smelter-Fume Problem.—The smelter-fume problem, a bone of contention between the metallurgical and agricultural interests of the Far West, has two essential factors which must be considered in any solution, the dust or solid material and the accompanying gases. The elimination of the solid matter is sometimes invitingly profitable and seems on a fair way to solution, when we consider the methods in use, such as bag-house filtration, Cottrell electrical precipitation, and wire interference in the path of the fumes checking momentarily its velocity, and thus permitting the solids to drop out. There is still to be considered, however, the enormous volume of gases, largely sulphur dioxide, which gives the suffocating odor and makes smelter fumes so destructive to vegetation. No merely mechanical means can readily eliminate this gaseous material. The method must be chemical. The thiogen process for this purpose, mentioned in the YEAR BOOK for 1912 (p. 650), still seems to be making headway in its commercial development. Now we have a new process, known as the Hall process. This process takes a step in advance of all the others by preventing entirely the formation of the oxidized sulphur gases which must be reduced or neutralized in order to eliminate them by present methods. The new process involves the direct distillation of sulphur from the ore and its subsequent recovery as such. This is obviously the most direct method of attacking the problem, avoiding as it does all intermediate steps of oxidation and reduction and the like. The distillation is carried out between 700 and 900 deg. C. by the direct application of a non-oxidizing flame and steam. The base metals are thus oxidized and the sulphur distills as such. The technical success of the process seems unquestioned, but it is obvious that it brings forward the problem of the disposal of enormous amounts of sulphur which would result from any wide adoption of the process in metallurgy.

High Form Lead Chambers.—The introduction of the contact process for sulphuric-acid production has compelled much improvement in lead-chamber design and installation. One of the recent improvements is the high form or Falding type of chamber. The two main factors in lead-chamber design are economy of chamber space (economy of lead) and economy of nitration. The function of the lead chambers in sulphuric-acid manufacture is to give space for the mixing and interacting of the gases, sulphur dioxide, oxides of nitrogen, steam, and oxygen of the air. For the most part the lead chamber of the past was designed subject to the limitations of a wooden frame. The result was that the principal dimension of the chamber space was always the horizontal axis in the same direction as the travel of the gases, although it has long been known that reaction takes place almost exclusively in the first few feet in the chamber. Various schemes have been tried to eliminate the waste or inactive chamber space, among them the increase of the relative amounts of oxides of nitrogen which act as carriers of oxygen in the change of sulphur dioxide to the trioxide state. The trioxide of sulphur or its equivalent reacts with water or steam to form sulphuric acid. There have been also tried surface or spray condensers intermediate to the chambers, parallel instead of series circulation of the gases entering the chambers, and tangential admission of the gases into cylindrical chambers. Each idea was useful and the last one was the first to alter materially the chamber shape to any considerable extent. In all these methods the influence of convection is ignored or little utilized. The reacting gases disengage heat and the great volume of nitrogen present from the air admitted to furnish oxygen serves to carry off this heat and cool the mixture. The cooling causes the gases to settle and sets up convection currents. In the high form of chamber the hot mixture will stay at the top or hottest part of the chamber until it has ceased reacting. It then falls as it cools and is forced downward by the gases continually entering at the top. Only one chamber is necessary. Among the good results claimed from installations now sufficiently long in operation to judge

are: large production with minimum chamber space; quantitative utilization of sulphur dioxide in a single chamber; and minimum nitre consumption. This type of chamber is made possible by structural steel supporting framework. It has shown a saving of 35 to 50 per cent. in lead; great economy of ground area and foundations; fire- and storm-proof construction; and compactness which makes for labor economy. Several large installations are in continuous operation. (See F. J. Falding and W. R. Cathcart, "New High Form of Sulphuric Acid Chambers," *Jour. Ind. and Eng. Chem.*, 1913, p. 223.)

Gasoline.—The subject of gasoline is of general interest because of the increasing demand and lack of prospective new sources of supply. The increased price has encouraged production, but at the cost of an ever-increasing storage of other petroleum fractions necessarily produced in obtaining the gasoline fraction. All these fractions which cannot be sold as gasoline, kerosene, or lubricants, are lumped together in the product "fuel oil." This product is disposed of at a very low figure and much experimentation was carried out years ago to split this fuel oil into lighter bodies. At that time kerosene or burning oil was the product in greatest demand. Everything in the shape of a distillate that could be gotten into the kerosene fraction and still have it meet the requirements for a satisfactory burning oil was naturally crowded into it. As soon as the present heavy demand for gasoline arose, however, the same policy of putting into the gasoline as much of the higher fractions as could be done and still have it pass for gasoline, became the ruling one, and most users of gasoline have noticed that it has become much heavier than it formerly was. Even this stretching of the limits of the gasoline fraction in petroleum distillation gave little relief under the pressure of increasing industrial demands. Two new sources of supply have suddenly appeared. The less important is that of recovery from natural gas at the wells. This appears to be best accomplished by compressing the gas and then cooling it, when the gasoline-like bodies liquefy and are withdrawn from the gas. This product will scarcely be so extensively produced as materially to relieve the shortage. It is very light and volatile, and not all natural gas is credited with being able to produce it. The other source of supply arises from a new method of producing gasoline from fuel oil or the waste oil fraction in petroleum refining. This method is in active operation in at least one large refinery and has resulted in the termination of many fuel-oil contracts in the middle west because of its more economical field in the new process. The fuel oil is distilled under pressure with partial return condensers. The distillate is a small amount of fixed gas, gasoline or "motor spirit," and a pitch-like residue of more than usually valuable physical properties. The yield of motor spirit is high and the product is said to give 20 per cent. more mileage than ordinary gasoline. It is put upon the market just as produced from the stills, without any purification by chemical means, so as to avoid the loss which would result from such treatment. The product is therefore slightly yellow and has a less agreeable odor than gasoline. The new addition to the petroleum-refining industry is, however, firmly established and is rapidly expanding.

Turpentine.—This industry has had a checkered career for some time, largely owing to price and stock manipulation. The industry formerly depended for its product upon the supply of gum bled from the growing pine. This has caused much misgiving because of the ruin it brought to the tree, and the extinction of the industry was believed to be approaching. New vigor has been injected into it, however, by the perfecting of methods for so purifying "distillation turpentine" that it has become acceptable in the arts almost on a parity with gum turpentine. Distillation turpentine is produced by distilling pine wood itself. Much prejudice existed against the new product at first, and because of lack of proper scientific attention it was frequently deserved, but where refining or production is properly handled this prejudice has entirely disappeared. The economically successful production of a

satisfactory finished product is not at all common to all the processes in actual operation, and most of these processes are doomed to ultimate failure. Notwithstanding the success of distillation turpentine in proper hands, the industry has been the victim of most pernicious and extravagant promotion and stock-watering, so that it is likely that scarcely a company is actually operating at a profit (figured on their fictitious capital). The succession of financial collapses in 1913 will clarify the situation, and there is no reason why, if honestly managed, the industry cannot be made a financial success as well as a scientific one.

Gas and Explosives.—The work of Colonel Dunn at the head of the Bureau of Explosives of the American Railway Association in making travel safe on the same railway with shipments of high explosives or high-pressure acetylene and other gas containers, is one of the shining services of science to the common weal. The oxy-acetylene blowpipe continues to find new applications and constantly to extend its use. The ability of the oxy-acetylene flame to cut its way through steel has suggested new dangers to vaults and safes. What is to hinder the scientific cracksman, equipped with an oxy-acetylene blowpipe, from cutting the hinges and bolts out of the steel doors of security vaults? It was at first suggested to line them with material which would give off poisonous fumes and so overcome the intruder. This at best would be an uncertain thing and might result in danger to others. The problem is now apparently solved in a rational manner by the invention of a steel alloy which can neither be drilled or exploded, neither can it be cut by the gas flame.

The Chemical Engineer and Industrial Efficiency.—Most of the publishing and a large part of the work classed as efficiency engineering has been done by mechanical engineers, largely because others have not interested themselves. A number of chemical engineers, however, have been quietly but actively engaged in this work for a long time, and recent articles have been claiming and demonstrating with much success that the chemical engineer is related to a large part of industrial manufacturing more closely than any other kind of engineer. This is not only because the chemical engineer is the best fitted for the invention and development of new processes establishing useful industries, but also because he is preeminently trained to operate in the large and ever-increasing field open to those who are able to improve or effect economies in the processes of industries already established. A good illustration of the kind of efficiency work which the chemical engineer has to his credit is the corn-products industry. In spite of increasing cost of corn and labor, difficulties in operation and utilizing by-products, and declining selling price of finished products, the industry has been developed to an enormous size in the 70 years since Thomas Kingsford first made starch from corn at Oswego, N. Y. One of the earliest economies was the saving of the "gluten feed." Previously wasted and a nuisance, it now is so well utilized that some factories recover as much as 250,000 lbs. per day. The next step was the conversion of surplus starch into glucose. Then came the recovery of corn oil from the germ. The yield is 300 per cent. greater to-day than when this was first accomplished. The value of the oils and the residual "oil cake" is to-day 25 per cent. of the purchase price of the corn. The conversion of corn oil into glycerine and fatty acids was next accomplished. Finally came the utilization of the so-called "steep water," or water in which the corn had been softened prior to grinding. This has been vacuum evaporated, and in place of being a nuisance in adjacent water supply through its putrefaction, its utilization is now being so satisfactorily handled that a 10,000-bushel plant profits thereby to the extent of about $100,000 per year. To-day the number of separate commodities produced from corn is 100. Plant capacity has grown in 10 years from 500 bu. to 30,000 and 50,000 bu. per day, and fewer men are employed to-day in these larger plants than formerly in plants of one-third to one-fifth their capacity. Unlike steel and sugar, this industry is a conglomerate of a number of others. *Per se*, the

manufacture of starch has nothing to do with that of oil, or glycerine, or corn syrup, or concentrated feeding stuff, nor these with each other. Nevertheless these different departments are so related to the whole as to be inseparable, and the efficiency of the whole depends, therefore, upon the efficiency of each branch. The value of the efficiency engineering of the chemical engineer in this industry can best be shown by the fact that the industry pays to-day for its raw material, corn, three times as much as a few years ago and sells its product for one-third of former prices. (See W. M. Booth, "The Chemical Engineer and Industrial Efficiency," *Jour. Ind. and Eng. Chem.*, 1913, p. 237; T. B. Wagner, "Efficiency in Chemical Industries," *ibid.*, p. 677; H. W. Gillett, "The Chemist and Scientific Management," *ibid.*, p. 593.)

Perkin Medal Award.—The award of this medal on Jan. 24 to James Gayley, metallurgist, is a good indication of the breadth of industrial chemistry. Among Mr. Gayley's distinguished services in the field of chemical engineering and metallurgy are included many inventions in furnace improvement, bronze cooling plates, a stand for the ladle in pouring Bessemer heats, and the dry-air blast. There have been few inventions more far-reaching than that of the dry-air blast, for which Mr. Gayley has no less than 15 successive patents in this country. It is said that as a result of this idea, the cost of producing pig iron has been reduced by 50 cents to $1 per ton, besides making it possible to produce iron of a uniform quality in all weathers. The output is increased 15 to 20 per cent. and the fuel economy is as great.

The Willard Gibbs Medal.—This medal was presented in Chicago, May 16, to Dr. Leo H. Bakeland for his distinguished services in industrial chemistry, the first industrial chemist to receive this distinction. Among these services may be mentioned the invention and practical development of Velox photographic paper, the perfecting of the Townsend cell for the manufacture of electrolytic alkali and chlorine at Niagara Falls, and finally the condensation products of phenol and formaldehyde, so much used in electrical insulation and lacquering under the general name of bakelite.

Miscellaneous Progress.—The desire to be potash independent has stimulated Government bureaus and private chemists alike. This cannot but bring an adequate return for the investment. The Cottrell method of electrical precipitation of suspended particles is being energetically applied to many industrial problems besides the important case of smelter fume, such as dust and cinder elimination from power plant chimneys and cement factories. The Palmer method of producing bi-calcic phosphate fertilizers with the aid of acid and alkali generated electrolytically in the process, is in commercial operation in Sweden and should have an important future, especially in this country in the utilization of our low-grade phosphate deposits. Synthetic formic acid is now being manufactured in the United States in great quantities by one concern for use especially in dye and print works, where it gives clearer tones with many dyes than could be obtained with acetic acid. Much investigation has been done recently on such chemical engineering topics as vacuum filtration and evaporation, drying, distillation, etc. New multiple product stills are giving fractionation results never dreamed of before.

PHYSICS

C. E. MENDENHALL

General.—The much discussed theory of relativity, which in a particular way denies the possibility of our ever having a knowledge of absolute uniform motion, as distinct from the relative motion of different bodies, has been from time to time mentioned on these pages. While opposition to this generalization of Einstein has on the whole diminished, it is still true that work in this field is in this country confined to a few ardent advocates. Of these, Tolman has continued the application of the postulates of relativity to the fundamental ideas of mechanics, and Carmichael (*Phys-*

ical Rev., March, 1913, p. 179) has put the underlying ideas of relativity into simpler form. There has been no attempt either in this country or abroad (except possibly Sagnac, *Journ. de Phys.*, Nov., 1912) to extend the experimental basis for the relativity hypothesis, which has as yet not shown itself to be particularly fruitful or suggestive.

From two such institutions as the Mt. Wilson Solar Observatory and the Smithsonian Astrophysical Observatory continued contributions to our knowledge of the sun are of course to be expected, and during the year has come Hale's preliminary work on the general magnetic field of the sun, in which he shows, from the most minute examination of the absorption of light in the sun's atmosphere, that the sun has magnetic poles similarly situated to those of the earth, but that the sun's magnetic field is many times stronger than the earth's. The completion of Abbot's long study of the intensity of solar radiation gives a very accurate value for the "solar constant" (1.93 cal. per sq. cm. per minute) and proves that the energy which the sun sends to us is constant only on the average, and changes by as much as 10 per cent. from time to time. (See also XXIV, *Astronomy.*)

Michelson's very recent observations of tidal waves in the earth crust are of general interest, and are remarkable because of the simplicity of the method used.

Heat.—Of very general interest is the contention of Johnson and Adams (*Am. Jour. of Science*, March, 1913, p. 205), as the result of much experimental work, that the effect of uniform pressure on the melting point and chemical behavior of solids is so small that it probably has little to do with the condition of the deep layer of the earth's crust. They conclude, in agreement with, but extending, the conclusions of other observers, that high temperature has a much greater influence than pressure in altering the physical and chemical properties of solids, and that the melting point of a solid is not seriously altered by pressure unless the pressure is non-uniform, like a twist or a shear. Related to this is the continued work of Bridgeman with extreme high pressures. His latest results (*Proc. Am. Acad.*, May, 1913, p. 1) give the properties of a dozen liquids (alcohol, ether, etc.) from 20 to 80 deg. C. and up to pressures of about 11,000 atmospheres. While the results as a whole are extremely complex, and indicate that possibly the shape of the molecules is responsible for some of the effects, nevertheless certain generalizations can be made, namely, that all liquids seem to become more nearly alike at high pressures, and the somewhat contradictory one that there is no evidence that large and complicated molecules break down into simple ones even when they are pressed most closely together. Passing to the other extreme of pressure, Trowbridge has obtained new data for the heat-conducting power of air at pressures of a few hundred-thousandths of an atmosphere, and he proposes to use this variation, in its effect on the temperature of a fine electrically heated wire, as a very sensitive gauge for extremely low gas pressures. For a similar purpose Langmuir suggests the measuring of the drag of a disc by another rapidly rotating disc separated from the first by the gas whose pressure is to be measured. In this way he can measure a pressure as low as one ten-billionth of an atmosphere. Millikan (*Physical Review*, March, 1913, p. 218) has studied the motion of minute drops of oil in air at various pressures due to the impact of air molecules (Brownian movements), thus confirming the deduction from the kinetic theory of gases.

To conclude the field of heat, Roebuck (*ibid.*, August, 1913, p. 79) has carried out a very satisfactory determination of the mechanical equivalent of heat by the hitherto unused method of forcing water through a porcelain diaphragm, and has studied the properties of water near its temperature of maximum density, 4 deg. C.

Radiation.—In the field of long wave, or in infra-red radiation, Wood (*Philos. Mag.*, April, 1913) obtained the rather surprising result that a layer of mercury droplets is almost perfectly transparent to long waves unless the drops are more than one-tenth of the wave length in diameter.

McCauley has published a study of the radiation from heated platinum, palladium and tantalum which proves definitely certain differences between the radiation from these metals and that from a perfect radiator such as the inside of a uniformly heated box. Coblentz (*Jour. Washington Acad.*, January and April, 1913) has contributed a study of such a perfect radiator and an interesting summary of the present state of knowledge concerning it. All this is of importance because the laws of radiation of a perfect radiator are closely connected with a great deal of the theoretical and experimental work now being done all over the world. The behavior of metals toward light, as regards reflecting and absorbing power, has been for some time an interesting field because of the possibility of explaining so much on the basis of the modern electrical theory of the constitution of matter. On the basis of existing theories Wheeler (*Philos. Mag.*, May, 1913, p. 661) has recently examined all of the available data on the optical properties of metals and has concluded that more accurate experimental results must be obtained before a theory can be agreed upon. A study of the optical properties of sodium and potassium by Duncan brings out the fact that sodium has the lowest index of refraction of any known substance, and the unique fact that solid sodium has peculiar properties with respect to about the same wave length that sodium vapor absorbs most strongly.

The question of the condition of a molecule, for example of mercury, when it emits the light waves characteristic of it has been attacked indirectly by Wood and more directly by Stark. The latter finds that the mercury molecule emits certain wave lengths of light when it is charged electrically negative, certain others when it is positive, and still others when it is not charged at all, that is, contains equal amounts of positive and negative electricity. The last statement is confirmed by Child (*Philos. Mag.*, Nov., 1913, p. 906), using a different method of study. This question is of course the fundamental one for all spectroscopists, and Stark's work is perhaps the beginning of the answer. In this same field Lyman has extended the study of the spectrum of mercury to the region of very short waves, as far as a wave length of about 1/10,000 mm. (1,300 Angström units) and has found two emitted wave lengths predicted by Paschen. Wood (*Philos. Mag.*, Nov., 1913, p. 828) has extended his studies of the resonance and fluorescence of iodine and other vapors when exposed to light of certain wave lengths. The results do not seem entirely reconcilable with Stark's hypotheses, but indicate that the exciting light directly stirs up the resonating molecules or ions.

Returning to his original field of work, Michelson has described and used an ingenious method for detecting a possible effect of reflection from a moving mirror upon the velocity of light. No such effect was detected, though the method as carried out was not capable of showing a change less than two per cent. of the velocity of light in air; but it could be used to detect an extremely small change in the velocity of light due to the motion of the source. This question of the constancy or inconstancy of the velocity of light is of especial interest in connection with the theory of relativity mentioned above. Ayres has carried out a very careful study of the velocity with which light travels through various gases at various pressures up to three atmospheres and finds that no expression so far deduced connecting the index of refraction of a gas with the pressure is entirely satisfactory. Turning to the practical side, Langmuir and Orange (*Sci. Am.*, Oct. 25 and Nov. 1, 1913) have described a new incandescent lamp using filaments of tungsten in an atmosphere of nitrogen. The nitrogen effectively reduces the evaporation of the tungsten so that the lamps may be run at 2,850 deg. C., which is at least 400 deg. C. higher than the running temperature of the tungsten lamps at present used. As with all radiating solids, the effect of increasing the temperature is to cause the emission of a relatively larger proportion of the shorter waves which affect the eye, as compared to the long waves to which the eye is insensitive; hence the lamps are more

efficient. Large lamps of this type consume only 0.4 watt per candle power, less than one-third the cost, for a given amount of light, of the present lamps.

Electricity.—While it is generally agreed that an electric current in a metal consists of a stream of electrons (atoms of negative electricity), through the body of the metal, the problem of forcing the electrons through a boundary surface of a metal into a gas has presented a number of complexities and has been the subject of much study, with the hope of ultimately learning more about how the electrons exist in the metal, about which very little is known. Two ways of driving off electrons from a surface are by the action of light, especially ultraviolet light, the photo-electric effect, and by heating the metal, the thermionic effect. Richardson (*Philos. Mag.*, September, 1913) and his coworkers, to whom a great deal of our knowledge of thermionics is due, have continued their work and, going back to the fundamental nature of the effect, have shown conclusively that it is possible to "boil off" electrons from a metal, so to speak. Cook and Richardson (*ibid.*, April, 1913) have shown that, as was expected, escaping electrons carry off energy; hence measurably cool the hot metal. On the other hand, the discharge of positive electricity from metals is now generally admitted to be due to the escape of gases previously absorbed, while the escape of heavy charged particles of the size of atoms, both positively and negatively charged, as well as electrons, has been observed with heated salts such as lime. The photo-electric effect, or discharge of negative electricity from a metal, by light, has been studied by many observers because of its theoretical interest. It has been found by every one that the maximum velocity with which electrons fly off from any metal depends on the metal and upon the wave length of the light used to illuminate the surface, but the exact relation between the velocity and the wave length is still under discussion. By a direct application of Planck's idea that light energy travels in bundles, Einstein decided some years ago that the electrons should fly off with a velocity directly proportional to the square root of the number of vibrations per second of the light which sends them off. Richardson has recently arrived at the same result by different theoretical reasoning, but it cannot be said that this conclusion has been satisfactorily confirmed by experiment as yet, though the recently reported (Nov., 1913) work of Millikan and his associates is in very exact agreement with the prediction of Einstein. On the other hand, the number of electrons sent off per unit area of illuminated surface turns out to be exactly proportional to the intensity of the light, and to depend on the wave length in a way peculiar to each metal and strongly suggesting a sympathetic or resonance vibration. The recent work of Kompton and Richardson (*ibid.*, October, 1913) shows this phenomenon to be even more complicated than had been realized, and not in accord with any theory which has as yet been worked out.

As mentioned above, very little is known in detail as to the process of the flow of electricity through metals. The hypothesis of an atmosphere of free electrons moving among the relatively stationary atoms of metal and thus producing the flow of electricity and of heat was recognized as inadequate from the start. Hornbeck (*Physical Rev.*, September, 1913, p. 217) has recently suggested a slight modification, which depends again on the Planck idea of bundles of energy, but his own experimental results do not agree particularly well with his theory. Wien has in a more radical way modified previous hypotheses by conceiving a metal as made up of atoms arranged in regular rows, with the electrons moving in the lanes between the atoms. The higher the temperature the more the atoms move back and forth out of their natural positions and hence interfere more with the motion of the electrons in the lanes, and thus interfere with the flow of electricity and alter the resistance of the metal. The electrons are supposed to move around between the atoms with a velocity which is independent of the temperature. While this interesting hypothesis works out in a fairly satisfactory

way and avoids some difficulties of the simpler theory mentioned above, it is not to be considered as final.

As regards the conduction of heat, the trend of opinion is undoubtedly back toward the earlier view that molecular motions are chiefly responsible for the conduction of heat through solids, and that the remarkable fact that many good conductors of electricity are also good conductors of heat, is of secondary importance. One of the most puzzling properties of metals is their so-called "contact electromotive force," which shows itself in this way, that if two different metals are connected electrically to earth and then brought with two faces near each other, the contiguous faces will at once become charged with electricity in a perfectly definite way, which surface becomes positively charged depending on what particular pair of metals is used. Hennings (*ibid.*, July, 1913, p. 1) has carefully examined the problem and settled some disputed points; for example, he has shown that it depends only on the surfaces which are close to each other, and that either surface charge will not appear if the one metal is screened by a wire gauze not too far away. The real cause of the effect, whether due to an insulated electric layer brought out by chemical action or to a direct action of the surfaces of the metals, is not known at present, though some results of Page and some observations of Millikan count decidedly against the layer theory.

After several years of elaborate study of all possible sources of error, Millikan has published (*ibid.*, August, 1913, p. 109) his final value of the elementary electrical charge or "atom" of electricity, as determined by his beautiful oil-drop method, namely, 4.774×10^{-10} electrostatic units. This in part depends on Gilchrist's new measurements of the viscosity of air, and is by all odds the most accurate determination of this very fundamental quantity.

Electric Waves.—Severinghause and Nelms (*ibid.*, June, 1913, p. 411) have studied electric waves reflected several times from screens of uniform strips of metal (resonators) and have shown that, like the corresponding case of selective reflection of light waves, the method may be used to pick out waves of a certain length from a complex beam. Ives has studied the absorption of electric waves in ionized as compared with non-ionized air and water vapor and obtained results almost great enough to account for the difference between day and night transmission of wireless waves.

X-Rays and Discharge Through Gases.—While some interesting work on X-rays has been carried out, it is notable that American experimenters have not stepped into the new field of X-ray diffraction and reflection by crystalline and other solids. Since Laue and Friederich's beautiful pioneer experiments of 1912, a host of foreign observers have taken up the work and at least the fundamental question seems to have been settled that X-rays are electromagnetic pulses of the same nature as light, but with an effective wave length about 1/10,000 that of the shortest known light wave. By a most refined study of the effect of X-rays in breaking up air molecules into positively and negatively charged ions, Plympton has brought out the fact that for the first one-third of a second after the ions are produced they are very likely to recombine because of their proximity; after this period the rate of recombination becomes constant. The puzzling fact that X-rays and ultraviolet light when passed through a thin film of metal drive off more electrons from the metal in the direction in which the light (or X-rays) is going than in the opposite direction has been taken by some to indicate the necessity of returning to a corpuscular theory of light. Richardson and others have considered the matter from the standpoint of the electromagnetic-wave theory of light, and while the question is by no means settled it seems certain that the wave theory can be made to account for all the facts.

Radioactivity.—While radioactivity does not attract as many workers as it did a few years ago, there is a steady increase in the knowledge of the chemical properties of radioactive substances (McCoy and others) and in the knowledge of the various intermediate products of disintegration.

Of special importance is the study of the scattering, reflection, etc., of the various radioactive rays by matter, as this raises fundamental questions as to the structure of atoms. While the study of this scattering has led Rutherford to suggest that atoms consist of a small positively charged nucleus surrounded by electrons, interest has been added to the older hypothesis of Thomson by a paper of Crehore. He imitates the action of Thomson's sphere of positive electricity through which electrons move, by proper use of the force of gravity, and obtains photographs of some artificial but possible atoms. An interesting paper by Bohr (*Philos. Mag.*, Nov., 1913) is devoted to a detailed working out of a Rutherford type of atom. Bumstead has added greatly to our knowledge of δ rays, slow moving electrons sent off from metals which are struck by α rays (positively charged particles of atomic size). Duane has studied the motion in a magnetic field of ions produced by the heavy positive α rays from radium and has concluded that while the positive ions are molecules or atoms of nitrogen and oxygen, the negative ions seem to be always electrons. Wellisch has shown that there is a definite limit to the percentage amount of active material which will be deposited on a negatively charged electrode exposed to radium emanation, the remaining active material losing its charge almost as it is formed. Work of Gray on the scattering of X and γ rays indicates that there is probably very little real scattering of these rays when they pass through matter, but rather a reradiation.

Magnetism.—The relatively small amount of work done in this field does not indicate that all the puzzling questions are answered, but rather, perhaps, a difficulty in connecting experiment with theory as the latter now stands. Williams has published an interesting compilation of the various attempts to form an electronic theory of magnetism by Weiss, Langevin, and others. While doubtless in the main correct in ascribing the magnetic properties of molecules of iron, etc., to the presence of electrons moving in orbits, which turn and face one way when a bar is magnetized, the theories are still far from complete. An entirely different theory is that advocated by S. R. Williams, and though by its means he has been able to predict a number of magnetic effects, the theory seems essentially less valuable than that based on moving electrons. During the year Pierce (*Proc. Am. Acad.*, November, 1913, p. 555) has continued his careful study of the magnetic properties of iron. The influence of a magnetic field upon either the emission or transmission of light (Zeeman and Kerr effects) has been the subject of much recent experimentation and extensive theoretical work, the latter by Voigt especially. While all work up to 1913 has shown that light emitted in a magnetic field was more complex, that is, contained more different wave lengths than light from the same source not in a magnetic field, the use of stronger magnetic fields has now brought out the unexpected fact that a very strong field simplifies the light emitted, that is, reduces the number of different wave lengths. Voigt has been able to modify his theory to account for this. As regards the passage of light through a magnetic field, or reflection from the polished pole of a magnet, C. Snow has successfully applied Voigt's theory to account in a most exact way for the observations of Ingersoll.

Conclusion.—While the year 1913 has not been remarkable for any great or fundamental contribution to physical knowledge or theory, nevertheless a large amount of good work has been done, especially in the way of careful experimental testing of hypotheses. The most noticeable thing is the continued almost unquestioned acceptance of the revolutionary idea of Planck, referred to under "Electricity," that energy is emitted from radiating bodies in lumps or bundles, to put it crudely. In *Science* of Jan. 24, 1913, will be found an excellent summary by Millikan of the current attitude toward this idea of Planck, which has influenced every branch of physics, and in *Science* for Sept. 19 and 25, 1913, the more general address of Lodge, in which the ideas of continuity versus discontinuity are considered from a much more general point of view.

XXVII. THE BIOLOGICAL SCIENCES

ORGANIC EVOLUTION

W. L. Tower and John G. Sinclair

General Survey of Activities.—The center of interest in problems of organic evolution during the year lies in three phases of heredity: the rôle of sex in inheritance, the behavior of hybrid characters, and the experimental modification of inheritance. Morgan in his recent book, *Heredity and Sex* (Columbia University Press), treats this heretofore bewildering mass of data simply and clearly. The view taken is a welcome aid to further work even if incomplete. The work in heredity previous to 1913 is reviewed critically by Plate in the *Vererbungslehre* (Leipzig, 1912). Both these books contain excellent bibliographies. Modification of inheritance is the most recent phase of the evolution problem and its treatment is fragmentary.

The extent of investigations may be indicated by a few specific cases. Few investigators are in a position to carry out really critical experiments with incident forces. The University of Chicago has met the difficulty of conducting intensive research in evolution by more than doubling the capacity and equipment of its experimental plant; environmental control is a feature of this laboratory. The natural climatic complex at the Desert Botanical Laboratory in Tucson, Ariz., permits the conduct of mass experiments to compare with those at Chicago. At Cold Spring Harbor the collection of critical data on human inheritance is an important feature. New laboratories are being opened in England and on the Continent, prominent among which is the new Imperial Institute in Berlin; many good workers are preparing for an active investigation of heredity in this laboratory. The mechanics of environmental control as it is practiced in Vienna is given in detail by Pzibram (*Zeitschr. biol. Tecknik u. Methodik*, III, 163-245). While employing material ostensibly of solely agricultural interest, the investigators in our agricultural experiment stations are in many cases dealing with strictly scientific as well as economic problems.

Adaptation.—The interpretation of natural phenomena received contributions from several sources during the year. The decadent subject of mimicry and protective coloration is revived on a somewhat more critical basis by Jacobi (*Die Wissenschaft*, XLVII). Adaptations of all sorts experienced a thoroughly mechanistic interpretation at the hands of Metcalf, Livingston, Henderson, Parker and Mathews in a "Symposium on Adaptation" (*Am. Nat.*, XLVII, 65-116). They reflect well the attitude of present experimental biology. No other science has so long retained its teleological terminology as has biology, and it is refreshing to note the change in the type of investigations toward quantitative, analytic and synthetic work. A good working knowledge of the physical and mathematical sciences is becoming yearly more necessary in biological laboratories. Henderson's book, *The Fitness of the Environment*, presents the interacting system of the organism and its medium from this point of view. Verworn in his last edition of the *General Physiology* and again in his lectures on *Irritability* (Yale University Press, 1913) attacks the idea of causal factors in biological phenomena, noting the fact that any necessary condition to a reaction may be considered its

cause if it is so desired. Shelford applies the same idea to out of door nature (*Animal Communities*, University of Chicago Press, 1913). Any environmental factor may become a limiting factor for any organism effecting either its response or its very existence. Animal communities physiologically equivalent are thus maintained. This affords to some degree an explanation of geographical distribution as well as of local associations.

Cytology.—The material basis of heredity continues to be a study largely of chromosomes, particular attention being paid to sexual differences of chromosome number. Wilson presents the study of "Heredity and Microscopic Research" (*Science*, XXXVII, 961) in a fairly dogmatic manner, pointing to the complete correlation of data from the field of cytology and breeding. Special studies of the X-chromosome in distinguishing sex and its linked characters are the subject of part of Morgan's *Heredity and Sex*, and of several articles. Sturtevant (*Jour. Exper. Zool.*, XIV, 43-61) has formulated the lineal arrangement of hereditary factors along specific chromosomes of *Drosophila*, while Bridges (*ibid.*, XV, 587-606) tries to explain a variation from the expected ratio in a case of sex linkage by reference to non-disjunction of the female X-chromosomes at maturation. Several studies on the chromosome complex in hybrids, the parent chromosomes being diverse, give the expected arrangement, and serve as a possible explanation of sterility or failure in development. It is, however, very difficult to evaluate the cytological evidence for heredity. That it confirms or helps to explain the data of breeding is quite true. Whether it will ever form the basis of predictions to experiment or will serve to open up new phases of breeding investigation is questionable.

Variation. Mutation.—The necessity of "pure stock" is almost a truism among breeders, though the difficulty of a criterion for purity is apparent to those who study variation carefully. The chapter on meristic variations in Bateson's *Problems of Genetics* (Yale University Press, 1913) is worth noting in this connection. Morgan (*Am. Nat.*, XLVII, 5-16) had a race of wingless flies among which one appeared with one wing. The race mutated from the normal wild fruit fly apparently by loss of a factor for wings. This case is offered as argument against the presence-absence hypothesis of unit characters in favor of a simple readjustment of the germinal complex. Heribert-Nilsson (*Zeitschr. ind. Abst. Vererb.*, VIII, 90-231) has studied the variations of some pure lines of *Oenothera lamarckiana*, and obtained inheritable variants of all the characters which constitute the famous work of De Vries. Some were not so intense as these mutants and various gradations down to the normal were present. He claims that combinations of these variations give the mutant forms. That the synthesis of mutating stem stocks and fixed hybrids occurs in nature is open to little doubt. The importance of this phenomenon in evolution is debatable and a fit subject for experimental work. At present the origin of new species other than recombinations does not result from them. Better methods of studying variations disclose more mutations yearly. New types reported are: Safir for *Drosophila* (*Biol. Centr.*, XXXII, 47-54), Kiessling for barley (*Zeitschr. ind. Abst. Vererb.*, VIII, 48-78), and for the negro Castle and Simpson (*Am. Nat.*, XLVII, 50-7).

Inbreeding and Crossbreeding.—The effects of inbreeding are still debatable. Shull (*Biol. Bull.*, XIV) gets degenerative effects in rotifers. Long continued experiments on protozoa, flies, beetles, and mammals show an inappreciable effect, except as inheritable weaknesses in both parents tend to become more fixed in the offspring. Calkins and Gregory in studying the later history of the progeny of ex-conjugants in *Paramœcium* (*Jour. Exper. Zool.*, XV, 467-527) find that each one is not a potential germ cell and therefore immortal as Weissman stated. Some die soon, some continue indefinitely without further conjugation, and to others periodic conjugation seems necessary to continued life. Jennings and Lashley (*Jour. Exper. Zool.*, XIV, 393-466) find biparental inheritance of vigor and productivity among these forms. Crossbreeding undoubtedly invigorates a stock in

most cases. Practical breeders like Webber, Marshall, and Anderson (*Am. Breeders' Mag.*, III), and Nilsson-Ehle (*Conf. int. de Genetique*, IV) state that the main advances in all lines of practical breeding have been through hybridization and extraction. An extensive investigation of the histological as well as apparent inherited characters of hybrid plants shows intermediate forms in 100 of the 121 characters tabulated (H. B. Brown, Miss. Agr. Exper. Sta., Tech. Bull., 3). It is found possible to state the degree of dominance quantitatively. The production of sterile hybrid stock may be avoided by the dilution of one strain in breeding back, if Detlefsen's results (*Am. Breeders' Mag.*, III) are of general application. In crosses of wild and domestic guinea pigs, what he calls one-eighth wild hybrids were fertile. That increased variability results from hybridizing ducks is shown by Philips (*Jour. Exper. Zool.*, XII). The same result is not obtained through conjugation in *Paramœcium*. Davis (*Am. Nat.*, XLVII, 449-77, 540-64), while reporting progress in the hybrid synthesis of *O. lamarckiana*, has not yet produced a "mutating stem form." Mendelian principles have been successfully applied by Emerson and East to quantitative characters in maize (Neb. Agr. Exper. Sta. Bull. 2). Gametic coupling, with or without sex, forms at present an intricate chapter in breeding. Vilmorin (*Jour. of Genetics*, III, 67) reports that certain dwarf mutants in wheat while dominant to the normal can never be extracted pure, always giving 20 to 30 per cent. of tall progeny. In the researches of Tanaka (*Jour. Coll. Agr. Tohohu Imperial Univ. Japan*, V) and Toyama (*Biol. Centr.*, XXXII) certain dominant characters of the silkworm show complete coupling or repulsion in the hybrids, depending on whether they are introduced through one or both parents.

Eugenics consists at present largely of the study of human hybrids. Shuster has written a simple and general text on *Eugenics* (Oxford University Press), taking the stand that enough is known to warrant taking positive steps in applying eugenic principles. Traits of character (Woods, *Am. Breeders' Mag.*, III) and the coupling of hair and eye color (Brownlee, *Proc. Roy. Soc. Edin.*, XXXII) have been discussed during the year. Rogers (*Am. Breeders' Mag.*, III) has presented an extensive table of genealogies of the feebleminded. (See also XVI, *Eugenics*.)

Determination of Dominance and Sex.—Dominance is reported by Cook to be to some extent regulated externally in cotton breeding (Bur. Plant Ind. Bull. 256). It is, moreover, not constant in corn, where an albino mutant of yellow dent was at first dominant to yellow, later becoming recessive (Collins, Bur. Plant. Ind. Bull. 272). Richard Hertwig and Kuschakewitch have revived the question of sex determination (*Biol. Centr.*, XXXII). By preventing female frogs from laying their eggs for two or three days after the normal period, the percentage of males in the offspring was increased in some cases to 100 per cent., the normal ratio being one to one. Differential mortality does not explain the result when the total mortality is only five per cent. It is suggested that delayed fertilization renders the egg nucleus unfit for further development. Fertilization then starts a parthenogenetic cycle in which the sperm nucleus alone takes the part of the usual double nucleus. This criticism demands further test. In cattle breeding Pearl and Parshley report similar but less marked phenomena when coitus occurs late in the œstral period (*Biol. Bull.*, XXIV).

Experimental Evolution.—The question of the inheritance of acquired characters and the direct modification of germinal constitution have in practice become so closely allied that distinctions are purely academic. Sumner has produced modified forms in mice through the action of external temperatures, which persisted in inheritance. Now (*Jour. Exper. Zoöl.*, XV, 315-79) he finds that internal temperatures of the mice are not disturbed by change of external temperatures beyond the individual fluctuations of the mice. Thus he believes the influence upon the germ plasm came indirectly through the soma. The salamander is polymorphic with regard to color. Kammerer (*Entw. Mech.*, XXXVI) studies the effect of dry and

moist atmospheric conditions on yellow and black pigment. Under moist conditions yellow predominates and in dry air the black. The induced changes are not obtained complete in a single generation. The change is reversible and here also several generations are necessary for the new equilibrium. Eisenberg (*Umschau*, 1912, pp. 805-7) records inheritable changes experimentally produced in cultures of bacteria, and Schiemann reports similar results for fungi (*Zeit. ind. Abst. Vererb.*, VIII, 1-35). The work that Dobell reviews in summary (*Jour. Genetics*, II), while not accomplished in 1913, is made accessible for the first time. Among the protozoan blood parasites, the trypanosomes, mutants were produced. The agents employed were in one case drugs of the pyronin, acridin and oxazine groups, and the corresponding mutants were changed in virulence as well as in form. In one case reported, by experimental means the mutant was made to revert, after many generations, to the original form. Others made resistant to arsenic by treatment with arsenophenylglycin through a number of generations, retain this character hereditarily thereafter. Transference through cold-blooded animals permanently alters certain races of trypanosomes. Similar cases are reported for bacteria, where color, immunity, virulence, and fermenting power on particular carbohydrates are objects for mutation. A more interesting piece of original work is that of Stockard (*Am. Nat.*, XLVII, 641-83). This is a crucial test of the part played by alcoholism in inheritance. Stockard cites the marked action of alcohol on the reproductive tissues in general and the ovary in particular, producing a distinct atrophy in man. In the guinea pig the degenerative effect is not so apparent in the tissue, even after as much as three years of continual drunkenness, which is a large part of a guinea pig's life. The effects of intoxication are seen in the large number of failures, of stillborn litters and of stunted growth accompanied by extreme nervous disorders and early death. The second generation while never intoxicated transmits its failings apparently in an accentuated degree. The most potent effect of alcoholic taint in these stocks is a debilitated nervous system and defective sense organs.

Up to this time the conditions of experiment have resulted in mutative changes whose nature seems solely determined by the organism itself. Incident forces have apparently no determinative or directive effects other than that shown by general degeneration. Future investigations will deal more intimately with the physiology of the hereditary mechanism under the action of controlled external forces.

ZOÖLOGY

H. E. Jordan

Morphology.—Buxton (*Zoöl. Jahrb. Supp.*, XIV, 2) has published an elaborately illustrated comparative morphologic and histologic study of the coxal glands of spiders and allies (arachnids). He shows an homology of the salivary gland in *Peripatus* with the coxal gland of the *solifugæ*; also an homology of the coxal glands of other arachnids with the large nephridia of *Peripatus* on legs four and five.

The question as to whether the segmentation of the vertebrate body expressed in the primitive somites of the embryo and certain definitive structures in the adult extends anteriorly over the head, at least in early stages, has long been a problem of much interest to morphologists. A contribution is made to the subject by Johnson (*Am. Jour. Anat.*, XIV, 2), who shows that in embryos of *Chelydra serpentina* (the snapping turtle) three preotic head somites are developed on each side, and traces their development into their respective adult derivatives.

The function of the interstitial cells of the testis still awaits solution. These cells are supposed by many to elaborate an internal secretion which has to do with the origin and maintenance of male secondary sexual characters. Whitehead (*Anat. Rec.*, VII, 3) makes a notable contribution

to this subject from a study of a testis from a human pseudohermaphrodite with female sex characters, the results of which are strongly opposed to the theory which attributes the development of secondary sex characters to these cells (see also XXX, *Anatomy*). Goodale (*Am. Nat.*, XLVII, 555) has put the theory to experimental test. He removed the ovaries and testes from young Brown Leghorns. The results of his experiments show that the female may assume male characters following the removal of the ovary, but that the male assumes no positive female characters after removal of the testes. The changes in secondary sexual characters in the castrated male are interpreted as a return to the juvenile condition. These experiments seem to indicate that the interstitial cells of the testes bear no causal relationship to secondary sexual characters, and suggest, furthermore, that the condition of femaleness is of the nature of inhibited maleness.

Pappenheimer (*Am. Jour. Anat.*, XIV, 3) has continued his histological study of the thymus. In the frog's thymus, by the use of Benda's mitochondrial method, he is able to demonstrate minute granules not hitherto described. Similar granules, probably mitochondria, were also demonstrable by the use of vital stains in living cells. On the basis of an identical granular content, he identifies the small thymic cells as lymphocytes which have wandered in from the blood (thus confirming Maximow in his findings in amphibia), an important observation in that it is in direct opposition to a view widely held that the small thymic cells are differentiated epithelial cells of the original anlagen.

Embryology. — Badertscher (*Am. Jour. Anat.*, XV, 1) has shown from a study of muscle degeneration in amphibia that the eosinophile granules of eosinophile leucocytes are products of degenerated muscle tissue and degenerated red blood cells. The principal constituent of the granules is conceived to be hæmoglobin. According to this view eosinophile leucocytes are simply white blood cells ingested with degenerated erythrocytes (also the view of the chief recent exponent, Weidenreich, of the hypothesis that the granules of eosinophile leucocytes are of exogenous origin) and degenerated muscle tissue. The opposing view attributes an endogenous origin to the eosinophile granules. This view finds support in the observation by Jordan and Flippin (*Folia Hæmatologica*, XV) that in the turtle, eosinophile granulocytes appear before hæmoglobin-containing blood cells. This contribution, furthermore, presents evidence to show that the monophyletic theory of blood-cell origin holds in turtles, that is, all types of blood cells, red, white, and lymphocytes, trace their ancestry back to a common blood mother-cell, the "lymphocyte" of Maximow. The spindle cells are shown to have a double origin from endothelial cells and from small lymphocytes.

Superfœtation, or the possibility of a second successful fertilization before the termination of a pregnancy, has long been a mooted question. A few instances of probable superfœtation in man are on record. King (*Biol. Bull.*, XXIV, 6) records observations on this important point made in the course of a series of inbreeding experiments with the albino rat. Superfœtation is said to occur occasionally and causes an interval of two or three days between the birth of different members of a litter. In rare instances ovulation takes place in the albino rat during pregnancy and superfœtation occurs. King reports two cases of this kind in which litters have been produced at intervals of about two weeks.

A much debated question concerns the possibility of mammalian ova to develop parthenogenetically, that is, without fertilization. Parthenogenetic development normally occurs in certain lower forms, for example, the bee, where the unfertilized egg gives rise to the male or drone. Reputed parthenogenetic development of human ova has been held responsible for ovarian tumors. Newman's (*Biol. Bull.*, XXV, 1) evidence on this point is therefore of special importance. He has demonstrated parthenogenetic cleavage in the armadillo ovum. These ova never leave the ovary and evidently do not undergo development beyond the eight-cell stage, after which they degenerate

and form "atretic follicles." There is no evidence that a further development may give rise to teratoid tumors, as urged by L. Loeb (1911) in the case of the guinea pig. He inclines to the belief that in these parthenogenetic ova no polar bodies are extruded.

Cytology.—Conklin (*Jour. Acad. Nat. Sci. of Phila.*, XV, S. 2, Dec. 12, 1912) has reached important conclusions respecting cell division in *Crepidula*. It has long been a favorite speculation among cytologists that the figure (spindle) in cell division (mitosis) may be explained in terms of the magnetic field. This hypothesis is put to actual test in eggs subjected to an electric current. Conklin finds no evidence that the centrosomes and chromosomes carry electric charges which differ in sign, nor that the mitotic spindle and the astral rays are chains of granules, as has been claimed by some, along lines of force in an electric field; nor that the movements of chromosomes into or out of the equatorial plate are due to the attractions or repulsions of electrically charged bodies. On the contrary, the mitotic figures were found to be able to move as a whole; and the spindle fibers are said to be actual threads of more consistent plasma than the surrounding parts, with ability to undergo bending and stretching without interrupting their continuity. Conklin concludes that typical movements of chromosomes into and out of the equatorial plate cannot be explained consistently on the hypothesis that these movements are due to electrical attractions or repulsions between centrosomes and chromosomes. The spindle fibers are shown to be not preformed structures, but appear to grow, when first in contact with the chromosomes, in a manner suggestive of the formation of fibrin threads in clothing blood. Theoretically it is possible, according to Conklin, to explain the division of chromosomes and their movements into and out of the equatorial plate by such formation and growth of polar fibers and of interchromosomal fibers. Contrary to conditions in certain eggs, *e. g.*, starfish, where the spindle fibers arise outside of the nuclear membrane before rupture, Conklin finds in *Crepidula* that they are internuclear, for in late stages of mitosis they are seen to dissolve and become incorporated within the daughter nuclei along with other achromatin. In these experiments numerous nuclear conditions appear superficially resembling amitoses, but are actually true mitoses. Conklin states his conclusion that "there is no entirely conclusive evidence that amitosis ever occurs in the origin of the sex cells of Metazoa or in the divisions which accompany embryonic differentiation." Chromatic bridges connecting separating nuclear halves, an appearance simulating amitosis, are interpreted in terms of straggling and coalescing chromosomes on a disappearing mitotic spindle.

In view of the contradictory findings of Child (1907) and Richards (1911) respecting amitosis in early stages of sex cell development in *Moniezia*, Harman's study of cell division in the sex cells of *Tænia* is of special interest (*Jour. Morph.*, XXIV, 3). She finds no condition that cannot be as readily explained as the result of mitotic as of amitotic division. Jordan (*Anat. Anz.*, XLIII, 23, 24) finds abundant stages of amitosis in the ciliated cells lining the vasa efferentia of the mouse. Approximately one in five cells in certain regions are at some stage of direct nuclear division. No mitoses are discernible. The type of division (amitosis) is believed to be due in these cells to the partition of the centrosome in the formation of the basal granules from which the cilia develop.

An important contribution to our knowledge of mitochondria is made by Wildman (*Jour. Morph.*, XV, 2). Mitochondria are granular cell constituents whose origin and significance are still enveloped in considerable uncertainty. In the male germ cells of the thread worm of the horse, *Ascaris megalocephala*, Wildman obviously had very favorable material for study. As had been known, he also finds that the "refractive body" arises by the fusion of "refringent vesicles," which in turn arise from minute granules scattered throughout the cytoplasm of the young sperm cell (primary spermatocyte). The granules react to Benda's specific mitochondrial stain. The point of special importance is his

observation that granules exhibiting an identical staining reaction are found constantly in the nucleus of the primitive sperm cell (spermatogonium), and that these actually pass through the nuclear membrane into the cytoplasm of the spermatocyte. He believes further that the mitochondria are derived directly from the chromatin of the nucleus, in fact from the karyosome, and that they produce yolk. In consequence he proposes the term *karyochondria* to distinguish them clearly from the *plastochondria* of Meves, which are derived from the plasmosome of the spermatogonial nucleus. The function of the refractive body is held to be to feed the spermatozoon during its passage to the uterus. Altmann's "microsomes," spherical cytoplasmic granules, have no relationship with mitochondria, according to Wildman. They behave as if they were waste products of the metabolic processes of the chromatin. Many are discarded with the cast-off cytoplasm when the spermatozoon forms, always taking plasma stains, and all the facts seem to argue against Meves' interpretation of them as cytoplasmic elements of hereditary significance. These observations support the position that the physical basis of inheritance resides in the chromatin (chromosomes).

Brown (*Jour. Exper. Zoöl.*, XIV, 1) has studied three species of the insect group *Notonecta* with special reference to the chromosomes. She shows that the change in the number of the chromosomes from species to species can be explained by the relations of two particular chromosomes, an unequal XY-pair, or sex chromosomes. In one species they are always separate, in another united to form a single body, and in a third they may be separate in the first division, but united in the second. The important observation is made that in all three species all of the chromosomes are aggregated during the growth period in a chromatic nucleolus with a plastin ground work. Mitochondria are also present, first in the form of a flat plate, later of spheres and fibers. The fibers are believed to arise from the spheres. The mitochondria are shown to divide *en masse* with cell division.

Boring has continued her studies in insect spermatogenesis. She reports an odd chromosome, determining two kinds of sperm (presumably male and female producing) in *Cerastipsocus venosus* (*Biol. Bull.*, XXIV, 3). An interesting feature respecting the odd or accessory chromosome in this form is the initial beadlike structure in the growth stage, later becoming a condensed round or oval body. Two species of *Cercopidae* were also studied (*ibid.*): an odd chromosome appears in each, of typical behavior, dividing only in the second spermatocyte division, and entailing a dimorphism of spermatozoa.

Wodsedalek reports accessory chromosomes in the pig (*Biol. Bull.*, XXV, 1). The spermatogonia and male somatic cells contain 18 chromosomes, two of which are oval in shape and somewhat larger than the rest (autosomes) and which he interprets as accessories. The maturation divisions yield two types of spermatids, one with eight, the other with 10, chromosomes. The mature spermatozoa are said to be of two distinct types, one being much larger than the other. In the oogonia and female somatic cells 20 chromosomes were counted, four of them being the somewhat larger accessories.

On the basis of a comparative study of the growth stages of the spermatocytes in various mammals, Jordan (*Science*, N. S., XXXVII, 946) reports heterochromosomes in white mouse, sheep, horse, mule, bull and dog. No evidence of such chromosomes appears during these stages in mongoose, cat, squirrel, pig and rabbit. It is possible that heterochromosomes are actually absent in the male germ cells of certain or all of this latter group, but the crucial test is obviously, more particularly in view of Wodsedalek's finding in the case of the pig, actual chromosome counts. Heterochromosomes, or X-elements, have now been reported in so many forms, even among mammals, as to make it very probable that they are universally present, and that they are closely concerned in sex determination, giving rise to male and female producing spermatozoa.

Wieman (*Am. Jour. Anat.*, XIV, 4) reports careful chromosome counts

of somatic mitoses in various tissues, including liver, brain, mesenchyme, intestinal mesothelium and nasal epithelium of the human embryo. The number varies from 33 to 38, 34 being the number most frequently met with. The work of a number of cytologists indicates that the number of chromosomes in man is 24. The recent work of Winiwarter (*Arch. d. Biol.*, XXVII), however, gives the number as 47 in the male and 48 in the female. On the basis of his counts Wieman inclines to the belief that the somatic and spermatogonial numbers of chromosomes may perhaps not actually be identical as has been long supposed.

Montgomery (*Jour. Acad. Nat. Sci. Phila.*, XXV, S. 2, 1912) confirms Guyer's conclusion that there are 12 chromosomes in the human primary spermatocyte, 10 bivalent autosomes, and two univalent allosomes. He shows, however, a variability in their behavior not before noted. This variability gives rise to four classes of spermatozoa with regard to their allosome content, and possibly five or six. This fact is interpreted as showing actual "intra-individual germinal variation." He finds no evidence of a second pairing of the chromosomes in the secondary spermatocytes, such as Guyer reported for certain vertebrate forms, including man, and Jordan for opossum.

Hargitt reports some important observations on the oogenesis of *Campanularia flexuosa* (*Jour. Morph.*, XXIV, 3). He shows that the egg cells are simply transformed entodermal cells, thus precluding here any continuity of the germ plasm. Furthermore, the nucleolus during the growth period of the egg fragments and passes into the cytoplasm as granules which go to form the yolk spherules. When the nucleolus has disappeared and the growth of the egg has ceased, the chromatin of the nuclear reticulum produces 10 chromosomes. A chromatin residue escapes into the cytoplasm. The nucleolus is conceived as the place where the chromatin is produced and transformed for the different functions it has to perform. The origin of new chromatin and its dissipation during growth are believed to be strong evidence against the conception of the continuity of the chromosomes.

Payne (*Arch. Entwckl.*, XXXVI, 3) has studied the effect of radium upon the eggs of *Ascaris* (meg. univ.). His observations support the earlier conclusions of Hertwig (1911) that the effect of the radium manifests itself in the first segmentation division, breaking the chromosomes up into irregular masses and granules; the achromatic spindle remaining normal during the earlier mitosis. Irregularities in division eventually cause the death of the embryo. Payne shows further that the chromatin of the sex and somatic cells in the second and third segmentation divisions behaves differently. The chromosomes of both cells break up, but the fragments in the sex cells are generally larger.

Experimental Zoölogy.—Following the technique first employed by Bataillon, Loeb and Bancroft (*Jour. Exper. Zoöl.*, XIV, 2) have succeeded in causing the unfertilized egg of the frog, removed from the uterus, to develop by puncturing it. From 700 punctured eggs of the southern leopard frog, 13 good morulæ were isolated the day after the operation. On the sixth day eight of the parthenogenetic eggs hatched, four developing irregularly. Two of the normal eggs were brought to the larval stage; one metamorphosed normally after five weeks; both eventually died. The condition of the sex glands indicates that both parthenogenetic tadpole and frog were in the hemaphroditic stage (Kuschakewitsh), perhaps in the early stages of male differentiation (*ibid.*, 3).

Tennent has continued his studies in hybridizing Echinoderms (*Science*, N. S., XXXVII, 953). It is now established that according to varying conditions the larvæ may be of paternal, maternal or blended type with respect to certain characters. Tennent had previously (1911) shown that in reciprocal crosses between *Hipponoë* and *Toxopneustes*, made in ordinary or in alkaline sea water, *Hipponoë* is dominant (contributes the larval characteristics), but made in sea water to which a slight amount of acetic or hydrochloric acid has been added, *Toxopneustes* becomes domi-

nant. The real problem is the determination of the conditions under which the various types appear. This point remains to be further elucidated. But Tennent is now able to show clearly the influence of foreign sperm in certain hybrids. In normal development *Cidaris* differs from modern Echinoids in that the mesenchyme (which forms the skeleton) arises from the inner end of the archenteron (primitive gut) about 25 or 26 hours after fertilization. In *Toxopneustes* the primary mesenchyme cells arise about eight hours after fertilization, at the posterior pole of the blastula, passing into the blastocœle before the beginning of the invagination of the archenteron. A like condition prevails in the case of *Hipponoë*. When the *Cidaris* eggs were fertilized with either *Toxopneustes* or *Hipponoë* sperm, the archenteron began to appear at about 23 hours after fertilization, as in normal *Cidaris* development, but the mesenchyme arose shortly thereafter from the base of the archenteron, at the region of the lips of the blastopore. This changed site of mesenchyme origin is a paternal character and shows the influence of the foreign sperm.

A problem of cardinal interest in biology concerns the purpose of conjugation in infusoria. It was long believed to produce the effect of a "rejuvenescence." Jennings (*Jour. Exper. Zoöl.*, XIV, 3) has investigated the effects of conjugation by an elaborate series of experiments with *Paramœcium*. He summarizes his main results thus: So far as physiological effects are concerned, conjugation does not produce rejuvenescence, for after conjugation most of the animals are less vigorous than before. What conjugation does is to bring about new combinations of germ plasm, just as is done in the sexual reproduction of higher animals. One result of this is to produce biparental inheritance; another is to give origin to many variations, in the sense of inherited differentiations between different strains. Some of the new combinations are better adapted to the existing conditions than others; these survive while the others die out.

In a second contribution in collaboration with Lashley (*ibid.*), Jennings discusses biparental inheritance and the question of sexuality in *Paramœcium*, and demonstrates for the first time that biparental inheritance exists in infusoria as a result of conjugation. These authors show that after conjugation in *Paramœcium* usually a considerable number of the lines of progeny descended from the conjugants die out or are weak. The two members of a pair frequently differ in this way. This, however, does not warrant interpretation as indicating incipient sexuality; on the contrary conjugation has the effect of making the progeny of the two members resemble each other in vitality and in their reproductive power (fission). These findings oppose the idea of sexuality showing itself as a tendency for two members of a pair to be diverse in vitality and reproductive power, and show "that biparental inheritance occurs as a result of conjugation, the vitality and rate of reproduction being affected by both parents so that the progeny of the two resemble each other in these respects." Furthermore, assortive mating is shown to occur with reference to reproductive vigor, probably a secondary consequence of the assortive mating based on size, which is known to exist. Biparental inheritance is shown to occur also in respect to body size (*ibid.*, XV, 2).

Calkins (*Proc. Soc. Exper. Biol. and Med.*, X, 3) reports provisional conclusions drawn from a series of experiments undertaken to test the variability after conjugation of *Paramœcium caudatum* in respect to the power to conjugate. This power was found to be correlated with known variations in vitality. Some individuals (ex-conjugants) are potential germ-cells, others apparently are not. These experiments are of prime importance since they seem to give a clue to the divergent results obtained by Maupas, Woodruff and Calkins, which the latter believes can not be harmonized on the ground of abnormal conditions or bacterial poisons in one case and not in the other. Calkins believes that the divergence must be due to some more deeply lying cause in the organisms themselves. The race that Calkins worked with in 1901 was, according to his own inter-

pretation, a conjugating race which died out in the 742d generation. He regards Woodruff's long line of over 3,500 generations as a non-conjugating race. He discards the traditional view that *Paramœcium* is a potential germ cell. He believes that the life history of conjugating lines has shown that if conjugation is prevented, the race dies out. This disproves Weismann's hypothesis that natural death is absent in protozoa.

Woodruff (*ibid.*, XIV, 4) shows that *Paramœcium* and certain other infusoria excrete substances which are toxic to themselves and, acting specifically, tend to inhibit the rate of reproduction. Woodruff (*ibid.*, XV, 1) makes an important contribution also to the subject of nucleo-cytoplasmic relation. In a pedigreed race of *Oxytricha fallax*, a hypotrichous infusorian, he finds a wide variation in the size of the cells and of the nuclei at all periods of the life of the race. Both nucleus and cell are smallest in mean size at periods of high reproductive activity, and both become progressively larger as the division rate falls. In individual cells the nucleo-cytoplasmic relation shows a wide variation at all periods of the life of the race, but the mean proportion of nuclear to cytoplasmic material is higher during the period of greatest reproductive activity. He interprets cell and nuclear size and the nucleo-cytoplasmic relation as incidental results rather than a cause of the rate of cell division.

Kepner and Taliaferro (*Biol. Bull.*, XIV, 6) have described interesting reactions on the part of *Amœba proteus* with respect to the manner of taking food. Each reaction is interpreted as a definite response, giving evidence of purposiveness, to conditions presented at the moment of accepting or rejecting the food.

Child has continued his studies (Study V) on the dynamics of morphogenesis and inheritance in experimental reproduction (*Jour. Exper. Zool.*, XIV, 2). He has shown that there exists in *Planaria* a relation between physiological resistance to depressing agents (various anæsthetics) and the rate of metabolic reactions, probably the oxidations. In "Study VI" (*Arch. Entwckl.*, XXXVI, 1) he investigates the nature of the "axial gradients" in *Planaria* and their relations to antero-posterior dominance, polarity and symmetry. He shows that the length of life in potassium cyanide solutions of different levels of the planarian body along the antero-posterior axis is different, and that this difference is connected with the differences in the rate of metabolic reaction.

Goldfarb (*Biol. Bull.*, XXIV, 2), following the pioneer work of Driesch (1896) of experimentally fusing echinoderm eggs and thus developing various types of monstrosities, succeeded for the first time in fusing at will eggs of an animal found on this side of the Atlantic. The animal employed was the echinoid *Arbacia punctulata*. These eggs agglutinated under appropriate experimental conditions in pairs and clusters of from three to 20 eggs, and underwent development to early stages, producing many types of anomalies. It has long been known that the separated cells of early stages of development of certain echinoderms (and certain other lower forms) may develop into normal smaller-sized animals. Goldfarb's evidence indicates, moreover, that several eggs may be united so as to constitute a single larva, with or without traces of its duplicate nature.

Goldfarb (*Proc. Soc. Exper. Biol. and Med.*, X, 3) has continued also his studies on regeneration. The nerve cord was removed in earth worms for a distance of two to six or more segments from the point where the worm was cut in two. An improved technique obviated the usual large mortality. Head and tail regenerated in the respective sections irrespective of regeneration of the nerve cord. The investigation is conceived to demonstrate that *Amphinoma* as well as *Lumbricus* and other adult organisms can regenerate the missing organ without the contact of, or stimulation from, the central nervous system. In a second communication Goldfarb (*ibid.*) reports experiments in regeneration in *Cassiopea Xamanacha*, a jellyfish of the Gulf of Mexico. He shows that the amputated arms regenerate most rapidly in sea-water diluted 95 to 90 per cent.; and that with increasing dilution the amount regenerated was diminished very slowly, while with

increasing concentration it was diminished very rapidly.

Stockard (*Am. Jour. Anat.*, XV, 3) has experimented with *Amblystoma* embryos to determine the position of the materials that give origin to the future eyes. He removed antero-medial and lateral areas from the open medullary plate; the latter procedure in the great majority of cases did not injure the development of the eyes; the former gave rise to various anomalies. The experiments show that the eye anlage occupies an antero-median position in the medullary plate; and that cyclopia is due not to a fusion of distinct lateral primordia, but to a failure on the part of a single anlage to divide and the moieties to migrate laterally.

Loeb (*Arch. Entwckl.*, XXXVI, 4) reports observations further indicating that changes in the superficial layer of the egg, underlying membrane formation, are the cause of spontaneous development. Parthenogenetic development follows the artificial production, by butyric acid, etc., of a fertilization membrane in certain sea-urchins. In the starfish such a membrane may arise spontaneously (or after slight agitation) and initiate development. He concludes that spontaneous segmentation occurs in eggs with a spontaneous tendency to membrane formation.

Kite (*Biol. Bull.*, XXVI, 1) has shown that the structural components of protoplasm vary greatly in their permeability to water, dyes, and crystalloids; and that the rate of penetration of protoplasm by dyes and crystalloids is, in general, inversely proportional to the concentration of the living gel, animal or vegetable. In a second contribution on the physical properties of protoplasm (*Am. Jour. Physiol.*, XXXII, 2) Kite reports important results obtained by employment of very delicate methods of microscopic dissection and vital staining.

Lillie has continued his studies of fertilization (*Jour. Exper. Zoöl.*, XIV, 4). He reports results of studies of the behavior of the spermatozoa of *Nereis* and *Arbacia* suspended in sea water with respect of their reaction (activation, aggregation, and agglutination) to egg secretions. The ova of these forms are shown to give off into sea water a substance "fertilizin" which agglutinates the sperm of their own species. He has ascertained (*Science*, N. S., XXXVIII, 980) that this is a necessary link in the fertilization process and that it acts in the manner of an amboceptor with side chains for certain receptors in the sperm and egg respectively.

Dungay (*Biol. Bull.*, XXV, 4) shows that eggs of *Nereis* and *Arbacia*, fertilized by sperm injured by alcohol and other means, may produce abnormalities.

Banta (*Proc. Soc. Exper. Biol and Med.*, X, 5) shows that the cave form of the Amphipod, *Encrangonyx gracilio*, characterized by meagre pigment, appears to be less responsive to light and more responsive to tactile stimulation than its outside relative.

Gross (*Jour. Exper. Zoöl.*, XIV, 4) has studied the reactions of Arthropods to monochromatic lights of equal intensity. He shows that the order of the effectiveness of the colors in stimulating the larvae and adults of the forms studied is the order of the natural sequence of the colors in the spectrum: blue, green, yellow, red.

BOTANY

MORPHOLOGY AND PALEOBOTANY

JOHN M. COULTER

Angiosperms.—During 1913 morphological investigations of angiosperms may be characterized as supplementary rather than new. The question as to the most primitive angiosperms has been brought forward again in a study of *Magnolia* and *Liriodendron* by Maneval (Johns Hopkins), the conclusion being reached that the most primitive existing forms are to be found among the Magnoliaceae and not among forms with naked flowers. Another study of the mistletoes has appeared, a group whose morphology has always attracted attention. Two species of *Dendrophthora*, from Jamaica, have been investigated by York (Johns

Hopkins), and the results extend our knowledge of the peculiarities of the group. The peculiar development of the structures of the ovule is supplemented by the fact that no pollination occurs, and the embryo is developed in one species by the unfertilized egg, and in the other from the fusion nucleus, which usually produces only endosperm. The Atamasco lily of Texas, one of the Amaryllidaceae, has given some interesting results to Miss Pace (Baylor). In connection with egg formation there is no reduction division, and although the sperm enters the egg, it never fuses with it. The important conclusion is reached that a diploid egg (one with the double number of chromosomes) is incapable of fertilization. The problem of the morphological nature of the endosperm of angiosperms has been attacked by East (Harvard) by the experimental method. In cultures of maize the evidence favors the view that the endosperm is gametophytic in nature.

For a number of years, the anatomy of seedlings has been regarded as of great phylogenetic significance, and many investigations have been made. Now Hill and De Fraine, whose work is most extensive in this field, have concluded that the variations in seedling anatomy are of no significance as indicators of phylogeny. This is a far-reaching conclusion. As an offset to the loss of seedlings from the field of anatomical phylogeny, the phloem has emerged, to take its place beside the xylem in indicating phylogeny. Hemenway (Chicago) has investigated the phloem of nearly 200 species of angiosperms, chiefly dicotyledons, and has shown a gradual transition from the gymnosperm type to the most advanced angiosperm type, as shown among the Compositae.

Gymnosperms.—This group has attracted greater attention among morphologists than any other great group of plants. The most discussed question has been the relation of the araucarians to the Abietineae. In 1912, Jeffrey (Harvard) published a very strong argument, based upon wood-structure, that the araucarians have been derived from the Abietineae (*A. Y. B.*, 1912, p. 672). Thomson (Toronto) has now concluded, from a detailed study of the anatomy of the araucarians, that they have been derived directly from the Paleozoic Cordaitales, the group which has also given rise to the Abietineae. On the other hand, Miss Holden (Cambridge), in a detailed study of the ray tracheids of Coniferales, concludes that the araucarians, as well as the other tribes of conifers, have sprung from the Abietineae. The question has also been approached again from the direction of the older morphology, in a paper by Eames (Harvard) on *Agathis*, in which he concludes that araucarians represent a highly specialized branch of the Coniferales, and not a primitive stock; and in a paper by Burlingame (Stanford), whose testimony favors the view that the araucarians represent a primitive stock. Another line of approach has been in connection with a study of the podocarps, whose resemblances to the araucarians have been recognized for several years. In a detailed investigation of the reproductive structures of this group, Sinnott (Harvard) concludes that this group has been derived from the Abietineae, and that the resemblances to the araucarians indicate that this group also has had the same origin. The range of our knowledge of gymnosperms has been extended by the investigation, by Saxton, of *Actinostrobus*, an endemic Australian genus which shows some unexpected features.

The intensive work upon the anatomy of conifers for several years has resulted in forging a weapon that must be of great service in attacking related groups. This attack has been begun by Thompson upon Gnetales, a group whose affinities have been very obscure. *Ephedra* is the first genus of the group to be studied, and the anatomical evidence contradicts the recently claimed connection with the Bennettitales or Cycadales, and confirms the idea of origin from the ancient Coniferales.

Pteridophytes.—The Ophioglossales have received the most attention during the year, chiefly in reference to their anatomy. The group was formerly included among the true ferns, then separated from them, and now they are settling back to their old position. The chief publication as yet

has been by Lang (Glasgow), the conclusions being that the group is closely related to the ancient ferns, and that the pith is of stelar origin. An important paper by Bower (Glasgow), who is publishing a series of papers on the phylogeny of Filicales, groups the leptosporangiate ferns into two series, Superficiales and Marginales, distinguished by the position of the developing sorus, which he regards as a character that takes precedence over every other in indicating phylogenetic connections.

A very interesting series of experimental cultures by Miss Wuist (Michigan) upon the dioecious prothallia of *Onoclea* show that the sex of the prothallia is not predetermined in the spores, but that it depends chiefly upon age and environment. In fact, all parts of the apparently female prothallium were shown to possess the "male tendency," as concluded from the fact that they could be induced to produce antheridia. The discovery of well-preserved fossil prothallia was continued during the current year, one of them being the prothallium of one of the Paleozoic lycopods. There is every reason to expect that eventually the complete life histories of the most important extinct forms will be known.

Bryophytes.—The revived interest shown in liverworts in 1912 has continued during 1913, a number of studies having appeared, and many more having been promised. The great interest of the group lies in the fact that it is believed to have been derived from the algæ as the first group of land plants, and in turn to have given rise to the Pteridophytes, the first group of vascular plants. The phylogenetic position of liverworts, therefore, is very important. The chief attack during the current year has been upon *Riccia*, which in its sporophyte includes the most primitive liverworts. The motive of the papers has been to determine the most primitive species of *Riccia*, and also the method of origin of the air chambers. In addition to these phylogenetic studies, other investigators have added to our knowledge of various structures, notably the origin of gemmae and of adventitious shoots.

Algae.—The most noteworthy contributions to the morphology of algae have been those by Yamanouchi (Chicago), who published the life history of *Cutleria* in 1912 (*A. Y. B.*, 1912, p. 673). During 1913 he has published the life history of *Zanardinia*, a monotypic genus related to *Cutleria*, demonstrating a regular alternation of generations, the sexual and sexless individuals being vegetatively alike. The same author has also published a new species of *Hydrodictyon* (water-net) from South Africa, a genus which was thought to be monotypic.

A noteworthy study of a life history is that of *Glœotœnium* by Transeau. It is a very peculiar alga, found to occur near Charleston, Ill., and all of its phases were noted through four years of observation.

Fungi.—The most extensive series of investigations among fungi have been those of the Uredineae (rusts and smuts), which have been continued both in this country, chiefly by Arthur (Purdue), and in Europe. There is an increasing tendency in all parts of the world to clear up by prolonged and systematic efforts, rather than by sporadic cultures, the problems of biological relationships in this group of polymorphic fungi. During the year many life histories have been completed, and the list of species concerned is a very long one. The phenomena of sexuality among the Mucorales have also continued to receive much attention, and experimental work is beginning to uncover some fundamental facts in reference to sex. Three types of mycelia are recognized, namely, male, female, and neutral, and the problem has been as to the differentiation of the spores that produce these mycelia. It is now discovered that the sexual differentiation exists in the nuclei, and since any spore of the mucors may contain several nuclei, these nuclei may exist in three combinations: all male, all female, or a mixture.

It is also of interest to note that free swimming gametes, as shown by their conjugation, have been observed in a fungus (Olpidium) parasitic on *Vicia*. This occurrence of an alga character in a parasitic fungus strengthens the belief that fungi are derived from algae.

PHYSIOLOGY AND ECOLOGY

B. M. Duggar

Physiology.—The tendency to subordinate the descriptive aspects of physiological work to more rigid inquiries into the chemical and physical nature of life processes has been vigorously sustained during the year. One striking evidence of this growing tendency was the symposium on "Permeability, and Osmotic Pressure" arranged by the Botanical Society of America for the meeting at Cleveland in January. A movement has been inaugurated and indorsed to establish a section of physiology in the Botanical Society, and the plan was submitted for formal approval at the Atlanta meeting in December.

The closer relation of physiology to chemistry in recent years is responsible for the greater complexity which is now recognized in regard to the publication of physiological data. *Chemical Abstracts* and the *Chemisches Zentralblatt* are almost as essential to the physiologist as the *Botanisches Centralblatt*. The well-known American botanical journals report at present a relatively small part of the physiological investigations. Noteworthy activity in the publication of physiological data is apparent at some of the larger agricultural experiment stations, and similar physiological and ecological activity is maintained in the bureaus of the U. S. Department of Agriculture. Recently there has been established for the Department of Agriculture a monthly *Journal of Research*, to include the scientific contributions from all bureaus. As would necessarily follow from the present tendencies in physiological research, the various American biochemical journals are gaining in importance to physiologists. In this connection it is also noteworthy that of particular interest in Europe is the *Biochemical Journal* (London) under new auspices, the editorial staff including several investigators already well known in the investigation of plant processes, notably Arthur Harden, E. F. Armstrong, and V. H. Blackman. During the year there have appeared the first numbers of *Physiological Researches*, edited by B. E. Livingston, D. T. MacDougal, and H. M. Richards, an opportune periodical intended to be a series of physiological papers appearing at irregular intervals.

In continuation of their various studies on the water relations of plants, especially of dry-land plants, L. J. Briggs and H. L. Shantz have made an interesting contribution to the "Water Requirements of Plants" (Bur. of Plant Ind., Bulls. 284 and 285). The experiments indicate that, on the basis of dry matter produced, the water required by different crop plants from least to highest is as follows: millet, sorghum, corn, sugar beets, potatoes, wheat, oats, sweet clover, rye, peas, and alfalfa. If the water used by wheat is taken as 100, then the requirement for alfalfa is 211 and for millet 54, a remarkable difference.

Kite has attacked the problem of the physical nature of protoplasm from a new angle (*Am. Jour. of Physiol.*, XXXII, 146-164). The methods are essentially those of micro-dissection. Employing Barber's (Kansas) triple movement holder for pipette (or needle) and using glass needles drawn to an end of extreme fineness, he has studied particularly, in a variety of organisms, the viscosity of cytoplasm and nucleus, the nature of the vacuole, and certain diffusion relations. He presents much evidence against the commonly accepted diphasic nature of protoplasm. A. B. Macallum gives in his "Surface Tension and Vital Phenomena" (Univ. of Toronto Studies, translated from *Ergeb. der Physiol.*, XI) a clear and full discussion of his views relative to the importance of surface tension in the distribution of certain materials in the organism. This is most timely in view of Czapek's recent work, *Oberflächenspannung der Plasmahaut*, etc. (Jena, Gustav Fischer, 1911).

Among numerous other topics which have received considerable attention during the year and for which space fails for adequate mention, may be noted the following: the antagonistic action of various solutes (McCool, Hoyt, Hibbard, Hawkins); the phenomenon of wilting (Caldwell), and transpiration (Livingston, Lloyd, Reed, and Cooley); respiration, fer-

mentation, and metabolism (Hill, Knudson, Eckerson, Butler, Duggar); assimilation of molecular nitrogen (Goddard) and the formation of nitrates (Lyon and Bizzell); growth phenomena (Conover, Knudson, Peirce); and toxicity (Knight and Crocker).

A new book by W. F. Ganong, *The Living Plant* (Henry Holt & Co.), offers an interesting "description and interpretation" of the functions and structures of plants. This is a well sustained endeavor to popularize plant physiology, and the facts are well selected and understandingly and graphically treated. However, the attitude that it is "scientifically correct as well as practically convenient" to personify nature' will not be shared by the majority of physiologists.

Ecology.—In the field of vegetational ecology the most distinctive contribution is that of B. M. Davis on "The General Characteristics of the Algal Vegetation of Buzzards' Bay and Vineyard Sound in the Vicinity of Woods Hole" (Biolog. Survey of Woods Hole and Vicinity, Bur. Fisheries 31, part 1). An important study in ecological development is W. S. Cooper's "The Climax Forest of Isle Royal, Lake Superior, and its Development" (*Bot. Gaz.*, LV, 1-44, 115-140, 189-235). Particularly interesting in the quantitative study of the soil environment is the memoir of G. J. Bouyoucus, "An Investigation of Soil Temperature and Some of the Most Important Factors Influencing It" (Mich. Agr. Exp. Sta. Tech. Bull. 17).

TAXONOMY AND ECONOMIC BOTANY

J. M. Greenman

Seed Plants.—Of exceptional interest is Britton and Brown's new edition of the well-known work, *Illustrated Flora of the Northern United States, Canada, and the British Possessions,* in which important changes have been made over the first edition, particularly in extension of ranges, the revision of certain groups, and in the number of species added. The intensive study of the local flora in different parts of the northeastern and central states has been a marked feature during the year, as is exemplified by Fernald and Wiegand's several papers concerning the flora of New England and the Maritime Provinces (*Rhodora*), Clements, Rosendahl, and Butters' "Guide to the Spring Flowers of Minnesota, Field and Garden" (Geol. and Nat. Hist. Surv. Minn.), Small and Carter's *Flora of Lancaster County,* Millspaugh's "Living Flora of West Virginia" (W. Va. Geol. Surv.), and Tidestrom's "Notes on the Flora of Maryland and Virginia" (*Rhodora*). The flora of the south Atlantic and Gulf states has received somewhat less attention, but noteworthy publications pertaining thereto are Small's *Flora of the Southeastern United States,* second edition, and *Flora of the Florida Keys* and *Flora of Miami* by the same author. Wooten and Standley have issued a preliminary report preparatory to a flora of New Mexico (*Contr. U. S. Nat. Herb.*). The work begun some time ago by Dr. Rydberg has been continued and important data are recorded under the title "Studies in the Rocky Mountain Flora" (*Bull. Torr. Bot. Club*); Nelson in an article on "Contributions from the Rocky Mountain Herbarium XIII" (*Bot. Gaz.*), and Nelson and MacBride in a paper entitled "Western Plant Studies" (*Bot. Gaz.*) add several species new to science from the same general region. Heller has continued his studies on the far western flora, particularly Nevada and California (*Muhlenbergia*); Parish has published an important paper bearing the title "A Catalogue of the Plants Collected in the Salton Sink" (Carnegie Institution); and Piper has described several hitherto unrecorded species from the Pacific Coast (*Contr. U. S. Nat. Herb.*). Active work has continued in the Philippines. Elmer has published additional parts of the *Leaflets of Philippine Botany* in which, through the coöperation of specialists, many new species have been described. Scientific contributions have been made in the Hawaiian Islands, particularly by Forbes (Bern. Pau. Mus.) and by Rock (Board Agr. and Forestry, Div. Forestry, Bull., and Coll. Hawaii Pub. Bull.).

Substantial progress has been made in extending our knowledge of the

flora of Mexico, Central America, and the West Indies. Brandegee has continued the study of collections made in Mexico by Dr. C. A. Purpus and published (*Univ. Cal. Pub. Botany*) several new species, the types of which are in the herbarium of the University of California. Other papers pertaining mainly to the American subtropical flora are: "Diagnoses and Transfers among Spermatophytes," by B. L. Robinson (*Proc. Am. Acad.*), "Diagnoses of New Species and Notes on other Spermatophytes, chiefly from Mexico and Central America," by Greenman (Field Mus. Nat. Hist. Bot. Ser.), and "Undescribed Plants from Guatemala and other Central American Republics," by John Donnell Smith (*Bot. Gaz.*).

Particular attention has been given to certain groups of seed-plants. Dr. Ezra Brainerd has continued his researches on the genus *Viola*, recording some of his results in *Rhodora* and in the *Bulletin of the Torrey Botanical Club*. Britton and Rose have published a paper on "The genus *Epiphyllum* and its Allies," and in the same volume (*Contr. U. S. Nat. Herb.*) these authors have issued the first of a series of articles entitled "Studies in the Cactaceae." Bartlett, under the title "Systematic Studies in Oenothera" (*Rhodora*) adds to our knowledge of the genus; and a second paper, dealing with this family, under the heading "A Monograph of the *Hauyeae* and *Gongylocarpeae* Tribes of the Onagraceae," by Smith and Rose (*Contr. U. S. Nat. Herb.*), is of especial morphological and taxonomic interest. Pennell has published (*Bull. Torr. Bot. Club*) the results of investigations on certain Scrophulariaceous genera in the sub-tribe *Agalinanae*. Gleason supplements his recent monograph of *Vernonia* by a paper entitled "Studies on the West Indian Vernonieae with one new species from Cuba" (*Bull. Torr. Bot. Club*). B. L. Robinson has continued his studies in the *Eupatorieae* and has published (*Proc. Am. Acad.*) a key to the genera of this tribe and revisions of *Alomia, Ageratum* and *Oxylobus*. Blake (*Proc. Am. Acad.*) presents a "Redisposition of the Species heretofore referred to *Leptosyne* and a Revision of *Encelia* and some related Genera"; and Greenman in continuation of studies on the genus *Senecio* has published (Field Mus. Nat. Hist. Bot. Ser.) descriptions of several species new to science.

Trees and Shrubs.—Several important contributions to the taxonomic literature of ligneous plants have appeared during the year, among which may be noted particularly: Volume IV, part 3, of Sargent's *Trees and Shrubs*, the present part being devoted mainly to hickories, oaks, and buckeyes, and Volume I, part 4, of *Plantae Wilsonianae* (*Arnold Arboretum Pub.* 4) under the same editorship; and Sudworth's *Forest Atlas: Geographic Distribution of North American Trees;* Part I, *Pines*. One of the most pleasing publications of the year in dendrology is *The Indigenous Trees of the Hawaiian Islands*, by Rock, containing descriptions and excellent photographic reproductions of native arboreous species, many of which are new to science.

Ferns, Mosses and Liverworts.—The ferns and fern allies have received considerable attention. Aside from the several shorter articles in the *Fern Bulletin* and in the *Bryologist*, the following citations are indicative of the progress made in the taxonomy of these groups; a continuation of Maxon's "Studies of Tropical American Ferns" (*Contr. U. S. Nat. Herb.*), W. J. Robinson's "A Taxonomic Study of the Pteridophytes of the Hawaiian Islands, III" (*Bull. Torr. Bot. Club*) and Blake's "Forms of *Ophioglossum vulgatum* in eastern North America" (*Rhodora*). The most noteworthy contribution of the year on mosses is the elaboration of several groups by A. L. Andrews, Mrs. E. G. Britton, J. T. Emerson and R. S. Williams for the *North American Flora*. Evans has continued his investigations of the liverworts in "Notes on North American Hepaticae, IV" (*Bryologist*) and a "Revised List of New England Hepaticae" (*Rhodora*).

Fungi.—Taxonomic literature of the year on this group of plants is rather voluminous, but it is confined largely to the well-known periodicals, such as *Mycologia*, the *Phytopathologist*, and Lloyd's *Mycological Notes*, the contents of which indicate marked

activity and progress. Here should be mentioned an article of distinct taxonomic interest entitled "Can Fungi Living in Agricultural Soil Assimilate Free Nitrogen?" by Goddard (*Bot. Gaz.*). Students of the lichens have published several important contributions, particularly with reference to the lichen flora of different regions.

Algae.—Systematic publications pertaining to the algae have not been numerous. Klugh has published (*Rhodora*) "Notes on the Algae of Georgian Bay," and McMurphy records important data on "The Synchytria in the Vicinity of Stanford University" (*Dudley Memorial Volume*). Gardner (*Univ. Calif. Pub. Botany*) has an article on "New Fucaceae," and Smith (*Bull. Torr. Bot. Club*) describes a new four-celled Cœnobia alga to which he gives the name *Tetradesmus*.

Economic Botany.—Present contributions to our knowledge in this field of botany occur mostly in the form of comparatively short articles, and during the past year numerous original papers have appeared in the government publications. Coville, after continued researches, has issued a paper on "Directions for Blueberry Culture" (Bur. of Plant Industry, Cir. 122); and the same author has published a second pamphlet along similar lines entitled "The Agricultural Utilization of Acid Lands by means of Acid-Tolerant Crops" (U. S. Dept. Agr., Bull. 6). Cook has written and published a short contribution on "Wild Wheat in Palestine" (Bur. Plant Industry, Bull. 274), and Montgomery contributes further information on wheat under the title "Experimentation in Wheat Breeding" (*ibid.*, 269). The culture, curing and marketing of tobacco has also received due notice, and investigations along these lines are recorded by Mathewson under the heading of "Tobacco Marketing in the United States" (*ibid.*, 268). Of economic significance in a horticultural way may be cited Thompson's paper on "Ornamental Cacti: Their Culture and Decorative Value" (*ibid.*, 262). A further contribution to science and one which may lead to important economic results is an investigation by Swingle, published under the caption of "*Citrus ichangensis*, a Promising, Hardy New Species from Southwestern China and Siam" (*Jour. Agr. Research*).

PALEONTOLOGY

Charles R. Eastman[1]

Invertebrates.—The record of American achievement in invertebrate paleontology is considerably less for the year 1913 than for either of the two preceding years. No extensive memoirs have appeared which are comparable in magnitude and scope with Walcott's Cambrian monograph and Clarke and Ruedemann's Eurypterid volume, which were published in 1912. Not of inferior merit, however, though of more modest proportions and a restricted theme, is the monograph on *Paleozoic Terrestrial Arachnida of North America*, by Dr. A. Petrunkevitch (*Trans. Conn. Acad.*, XVIII). Noteworthy in the same connection are the discussion of *Phenacolestes* by P. P. Calvert, and various papers by H. F. Wickham and T. D. A. Cockerell on Miocene insects of Colorado.

The two Devonian volumes published by the Maryland Geological Survey rank as the foremost contributions of the year on faunal provinces. Dr. Walcott has continued his investigation of the Cambrian faunas of Alberta, and Prof. H. S. Williams has published monographic studies of the peculiar Silurian faunas of Maine and certain Devonian faunas (Tropidoleptus zone) of New York state. Dr. Percy Raymond's revision of the genus *Bathyurus*, and A. W. Slocum's description of new trilobites from the Iowa Devonian, add to our knowledge of Paleozoic crustaceans. Abroad, no sensational discoveries have been made during the year, but much general activity has prevailed, and a new sci-

[1] Special acknowledgments are due to Drs. W. D. Matthew, of the American Museum of Natural History, New York, and S. W. Williston, of Chicago University, for information furnished by them on fossil mammals and reptiles.

entific serial has been inaugurated by the German Paleontological Society.

Amphibians. — Our knowledge of land vertebrates of the Coal era and of the succeeding Permian period has been advancing rapidly. Important contributions by Williston, Case and Mehl in this country (*Carnegie Inst. Wash. Pub.*, 181), and by Baron von Huene, Broili, Robert Broom and other foreign writers on Permian vertebrates of Texas and New Mexico, are based upon a series of remarkably well preserved skeletons which have been discovered during the last few years. Williston has made known (*Jour. Geol.*, XXII, 6) the primitive structure of the stegocephalian mandible and has shown the existence in it of a new element corresponding to the infradentary of crossopterygian fishes. D. M. S. Watson has described some of the larger amphibians of the English Coal Measures, and also, together with Dr. Broom, has made brilliant researches on land vertebrates of the Karoo beds (Permo-Triassic) of South Africa.

Reptiles.—The researches of Moodie on American Carboniferous reptiles, and of Thevenin upon those of France, have greatly extended our knowledge of these most ancient of land vertebrates. The new results that have been gained bid fair to revolutionize scientific theories regarding the evolution and early history of the air-breathing tetrapods, to clear up the relations between primitive amphibians and various reptilian orders, and to demonstrate the true source and earliest stages in the evolution of mammals. The splendid collections of Permian reptiles obtained a few years ago by Professor Amalitzky along the banks of the Dwina River near Warsaw, now being prepared and studied at the St. Petersburg museum, may also be expected to throw much light upon the solution of these problems.

The marine reptiles of the Oxford Clay (Upper Jurassic) are described by Dr. Andrews in two quarto volumes issued by the British Museum. These studies, based upon a series of well preserved skeletons, add largely to the known anatomy and relationships of the plesiosaurs, ichthyosaurs, and sea-crocodiles of that period. The skull structure of ichthyosaurs has been made the subject of renewed investigation by Von Huene and Fraas, and the latter has described a new marine turtle from the Trias of Germany, the second known example from that formation. Flying reptiles have continued to receive attention. Broili describes a species of *Pterodactylus*, and an important paper by Hooley deals with the structure of *Desmatodon*, a European genus hitherto very imperfectly known.

Dinosaurs.—A fine series of skeletons of the primitive and imperfectly known dinosaurs of the Trias has recently been discovered at Halberstadt in Thuringia by Dr. Otto Jaekel, of Greifswald. The Berlin Museum continues its work upon the great dinosaur fauna, mostly of Lower Cretaceous age, that has been found in German East Africa. Excavations here have been conducted upon a much larger scale than any similar work in this country, with the result that over 50 skeletons were obtained, some of them of gigantic size, and exceeding anything hitherto known. The exact relations of the African to the better known European and American dinosaurs cannot be determined until after a more complete preparation and study of the material. Only a brief summary of the results of the expedition has as yet been published.

Recent explorations in Alberta by the American Museum of Natural History and the Canadian Geological Survey have resulted in much new information regarding Upper Cretaceous dinosaurs. Two richly fossiliferous horizons, the Edmonton and Belly River, have yielded a large series of skulls and skeletons of a great variety of these animals pertaining to the horned, duck-billed, armored and carniverous types, but most of them new to science or represented heretofore only by fragments.

From these strata Mr. Barnum Brown (*Bull. Amer. Mus. Nat. Hist.*, XXXII, 1913) has described several new genera and species of reptiles. The more important of these are: a new genus of duck-billed dinosaur having a high crest on the back of the skull, *Saurolophus;* another new genus of the Trachodontidae, *Hypacrosaurus*, in which the spines of the dorsal vertebrae are seven times the

height of their respective centra; a new genus of plesiosaurs, *Leurospondylus*, in which the vertebrae are very short and flat. This last is an especially interesting discovery, as it is the latest in point of geologic time of any plesiosaur. It was found in the Edmonton formation, which is slightly older than the Lance.

In this region, as in German East Africa, there appears to be a succession of distinct reptilian faunas, marked changes having taken place as time passed. The great diversity and large proportion of new types among these dinosaur faunas suggests that these bizarre and oftentimes gigantic creatures were no less abundant, no less varied in appearance and habits, during the Age of Reptiles, then were the mammalian quadrupeds of later times.

The Carnegie Museum continues the difficult task of excavation that was begun a number of years ago, under the direction of Earl Douglass, in the Morrison beds near Vernal, Utah. During the year remains of 10 or more large dinosaurs belonging to several genera have been removed from the quarry and shipped to Pittsburgh. A specimen of *Brontosaurus* is remarkable in having the tail, or "whiplash," consisting of over 80 vertebræ, preserved *in toto;* and in a beautifully preserved skull of *Diplodocus* the orbit shows a ring of sclerotic plates. The containing rock is sandstone of fluviatile origin, hence the presence of so many complete skeletons would imply that the floating animal carcasses had become stranded in shallow portions of the river, perhaps in the region of its delta.

Mammals.—A field party of the American Museum of Natural History, under Walter Granger, made large collections during the summer of the little known Paleocene mammalian faunas from the Puerco and Torrejon formations of New Mexico. An interesting discovery was that of a fairly complete skeleton of *Ectoconus*, and a number of skulls ancient skeletal portions of equally ancient and rare creatures. In the opinion of Dr. Matthew the discoveries tend to confirm the view that these Paleocene mammals were collateral but not direct ancestors of the later Tertiary quadrupeds; that the direct ancestors were evolved in some other continent, probably in Asia, and reached North America by migration across what is now Behring Strait. Diligent search failed to show a trace of dinosaurs in the Puerco, the oldest of these Tertiary beds, although they are present in the immediately underlying formation. It would appear, therefore, that the order became extinct during the interval, thus confirming an opinion that has been widely, but not universally entertained by paleontologists.

Another party sent out by the American Museum has secured from the great fossil quarry at Agate Springs, Neb., first opened up by the Carnegie Museum, a series of complete skeletons of *Moropus*, a gigantic extinct beast belonging to the group of Chalicotheres, distinctly related to the rhinoceros, but with long neck and small head, and provided with large claws on its feet instead of hoofs. The recognition by Professor Osborn of a new genus of Chalicotheres, named by him *Eomoropus*, from the Eocene of Wyoming, is of interest for recording the early appearance of this strangely aberrant group in the western hemisphere. A new species of *Moropus* from the Middle Miocene of Nebraska has recently been made known by O. A. Peterson, and a joint memoir on Old and New World Chalicotheres by the same writer and Dr. W. J. Holland is now in course of publication.

The University of Nebraska has recently made some very rich finds of later Tertiary mammals, among which are included complete skulls and skeletons of some remarkable types of proboscidians. Without question the asphalt deposits at Rancho-la-Brea near Los Angeles constitute the most extensive repository of fossil mammals in the world. First exploited by the University of California, the work of excavation has been continued during the year under the direction of Dr. Merriam with signal success. From these marvellous deposits have been obtained hundreds of skulls and literally tens of thousands of bones of fossil mammals and birds, representing the larger quadrupeds of Pleistocene times in California, and peculiarly rich in the great carnivora

which then inhabited the country, sabre-toothed tigers, wolves, bears, and gigantic lions. Here occur also in great profusion the remains of horses, camels, bisons, ground-sloths and many smaller animals, nearly all of extinct species, and many of them markedly different from those now found in the same region.

The manner in which the long procession of creatures came to be entombed in this veritable death-trap at Rancho la Brea is no less remarkable than the great abundance and perfection of skeletal remains. Pools of semi-liquid, soft asphalt surrounding petroleum springs, acted as a trap in which the animals were mired and slowly sank beneath the surface, the victims serving as a bait to lure other animals, especially beasts and birds of prey. Besides the great collections obtained by the University of California, a fine series of skeletons is now to be seen on exhibition in the new public museum at Los Angeles, and further explorations of the asphalt beds now in progress will no doubt yield rich returns.

The most remarkable members of this extinct mammalian fauna of the southwest are the great camel, equaling the modern Bactrian species in size; the lion, much larger than any living species; the sabre-tooth cat, as large as the Bengal tiger and with great dagger-like tusks six inches in length; the ground sloths, immigrants from South America, and distantly related to modern tree sloths, but of the size of an ox; the mastodon, a different species from the one commonly found fossil in the East; and the horse, subsequently becoming extinct in the New World and reintroduced by Europeans.

The University of California has also been pushing active exploration in the desert regions east of the Sierras in California and Nevada, and has obtained large collections representing the later Tertiary faunas of that region, which have thrown new light on the ancestry of the prong-horn antelopes and have cleared up other problems.

The exploration of cave deposits in Maryland and Virginia by Dr. J. W. Gidley for the U. S. National Museum has yielded fruitful results. In a large series of Pleistocene animals, including bears, peccaries, wolves and foxes, deer and horses, woodchucks and other rodents, remains of a true antelope, apparently closely allied to the living African eland, were discovered. Another interesting find recently announced by Dr. Gidley is that of a fossil camel from the Pleistocene of Alaska, thus confirming the prevalent view that the camels of Asia and Africa were evolved in North America and migrated to the Old World by a land bridge across what is now Behring Strait. That this migration took place at a comparatively early period is proved by the recent discovery of abundant remains of *Procamelus* in the Pliocene of southern Russia.

Foreign Discoveries.—The most sensational discovery among fossil mammals during the year is that reported by C. Forster Cooper of Cambridge University. Mr. Cooper has found in Baluchistan a great variety of fossil mammals of Oligocene age, new to science, including a gigantic beast much larger than any known land mammal, living or extinct, in fact approximating the huge dinosaurs in size. Thus far only imperfect remains have been found, but further search is under way, and the surprising nature of the finds is certain to stimulate exploration in the almost unknown regions of Central Asia.

The Piltdown skull, the most primitive of fossil "hominids" except the imperfectly known *Pithecanthropus*, belongs more properly in the domain of archeology than that of vertebrate paleontology, and need therefore be noticed only incidentally (see also XXVIII, *Anthropology and Ethnology*). The latest contribution to the subject is an article by Dr. A. Smith Woodward (*Geol. Mag.* for October, 1913), who gives a fresh reconstruction of the skull and figures a newly found canine tooth. The latter seems to furnish definite proof that the front teeth of *Eoanthropus* resembled those of an ape, and its recognition as a genus distinct from *Homo* is justified.

XXVIII. ANTHROPOLOGY, ETHNOLOGY, SOCIOLOGY, AND ECONOMICS

ANTHROPOLOGY AND ETHNOLOGY

GEORGE GRANT MACCURDY

The Antiquity of Man.—The most important single event making for progress in anthropology and ethnology during the year 1913 was the discovery in a gravel bed of the Ouse Valley, at Piltdown Common, Fletching, Sussex, England, of human remains associated with an ancient fauna, and of flint implements, usually referred to as eolithic and early Chellean. The discovery, which was made by Charles Dawson, was officially reported at a meeting of the Geological Society on Dec. 18, 1912, and the account published in the *Quarterly Journal of the Geographical Society* for March, 1913. The gravel bed at Piltdown is 80 ft. above and a mile removed from the present bed of the Ouse. The physiographic features of this region have not changed perceptibly since Roman times. The relation, therefore, of the present river bed to that which existed when the Piltdown gravels were formed indicate for the latter a great antiquity. The relics found in the gravel are at least as old as the bed itself; some, or even all, of them may be older.

All the bones, human as well as animal, are mineralized and stained to a ruddy-brown color, as are the sands and chipped flints among which they were found. The fragments showing most wear from transport are the remains of *Mastodon* and *Stegodon*, both typically Pliocene forms. These and some of the eoliths are evidently derived from an older deposit. The teeth of *Hippopotamus* and other mammalian fragments are in about the same condition of wear as are the human bones. The hippopotamus might be either upper Pliocene or Pleistocene. The gravel bed is probably early Pleistocene and the human remains are presumably of the same age, since the skull and mandible would not have remained in such close association had they been transported far from their original place of deposition. The fragments comprise portions of the occipital, left frontal and left temporal, and right mandibular ramus with first and second molars *in situ*. The cranial wall is remarkable for its thickness. Dr. A. Smith Woodward of the Natural History Museum, South Kensington, has made a restoration of the skull, the correctness of which has been challenged by Prof. Arthur Keith of the Royal College of Surgeons. The difference of opinion hinges largely on the estimated cranial capacity and conformation. Dr. Woodward has recently altered his reconstruction somewhat by a "slight widening of the back of the parietal region." The capacity is thus increased a little over his original estimate of 1,070 cu. cm., a figure which is not much above the minimum in modern man. Prof. G. Elliot Smith, a great authority on the human brain, accepts the modified Woodward restoration, declaring that the Piltdown skull affords evidence of a hitherto unknown group of the Hominidae, so fundamentally distinct from all other fossil human remains as to justify the name *Eoanthropus dawsoni*, given to the Piltdown man by Dr. Woodward. Certain features are particularly ape-like; others bear a closer resemblance to modern man than can be found in the much later Neandertal race. While the cranium is not unlike

that of the young chimpanzee, the lower jaw is even more ape-like. Professor Smith finds in this no incongruity; the development of the brain, as well as articulate speech, would logically precede the refinement of the features. The views held by Woodward and Elliot Smith would seem to be confirmed by the discovery on Aug. 30 of a canine tooth that obviously belongs to the half of the lower jaw originally discovered. This tooth is said to correspond to the lower canine of an ape in shape as well as in its mode of wearing on the upper canine. It differs from the canine of Dr. Woodward's published restoration only in being slightly smaller, more pointed, and a little more upright in the mouth.

Professor Keith is not satisfied even with Woodward's modified restoration and has made one that gives for *Eoanthropus* a cranial capacity of 1,500 cub. cm. The average cranial capacity for modern European males is 1,506 cu. cm. The Piltdown skull, therefore, if male would have a capacity somewhat less, and if female considerably greater than in modern man. Keith sees in Piltdown confirmation of his previously expressed view that the modern type of man was coexistent with the Neandertal type and is of great antiquity. Dr. R. Anthony of Paris, an expert of international repute, is inclined to side with Professor Keith in regard to the capacity of the Piltdown skull, at the same time recognizing in the Piltdown skull a remarkable ensemble of primitive characters. If Keith and Anthony are correct in their interpretation of cranial capacity, the question is once more raised as to whether skull and lower jaw belong to the same individual. If they do not, the name should be changed to *Homo dawsoni;* if they do, the term *Eoanthropus* is fully warranted, and in any event would apply to the lower jaw, which if separated from the cranium must have a name of its own. The prime fact, however, is not the disagreement among doctors, but that remains of the man of the dawn has been found; and not this alone, the remains have been found in association with a fossil fauna and a rude flint industry.

The Piltdown discovery serves to bring into relief the latest researches of Commont in the valley terraces of the river Somme in northern France. According to Commont (Congrès int. d'anthrop. et d'arch. préhist., Genève, 1913), the recent loess with Mousterian and later industries at Amiens is to be correlated with the Würm glacial epoch and succeeding stages. The Acheulian culture of the ancient loess belongs to the last interglacial (Riss-Würm) epoch, and the pre-Chellean industry to the Mindel-Riss interglacial epoch, that is to say, the epoch in which it is generally agreed the man of Heidelberg lived.

Two papers bearing on man's evolution from the anthropoids were read at the Birmingham meeting (1913) of the British Association for the Advancement of Science. The authors, Prof. Carveth Read and Dr. Harry Campbell, both give special prominence to the abandonment of an arboreal for a terrestrial life and to a liking for animal food as determining factors in human evolution. Man's differentiation from an ape-like progenitor has been essentially a mental evolution. But advance in intelligence in order to be effective must have for stepping stones an appropriate physical medium. Only a being possessed of prehensile hands, capable of serving the mind's behests, could evolve into man. He alone could become a user and inventor of tools and weapons. The first employment of these was by the few, but it "created a new standard of mental fitness, and compelled a leveling up of the entire species to that standard." Polygamy served at least one good purpose in that the male who combined a good physique with high mental endowment became the tribal leader, secured the largest number of wives, and thus left the maximum number of offspring to transmit his excellence. The evolution of motherhood and the restrictions and obligations of communal life have had much to do with the moral evolution of the human mind.

America.—In New World anthropology no one event of the year overshadows all others. Yet the student in almost any special field will find something new and of real merit in the year's output, the volume and

nature of which are such as to defy comprehensive and popular treatment. The most useful single work of the year is the *Handbook of American Indians North of Mexico*, a publication of the Bureau of American Ethnology, ordered reprinted by resolution of Congress. Curiously enough the only general work covering the western hemisphere as a whole is by a French man, H. Beuchat, whose *Manuel d'archéologie américaine* was published in 1912 by Picard of Paris. Works of this kind can have a firm basis only in the reports of original investigations; the *Manuel* brings out in bold relief the present inadequacy of foundation materials. M. Beuchat has gone as one of the archeologists on the Stefansson Expedition into the unexplored territory north of the Canadian mainland. As this expedition is generously subsidized by the Canadian Government, and its equipment for anthropological research is ample, its return some three years hence is awaited with unusual expectancy.

Canada.—Ethnological and archeological explorations directed by Dr. E. Sapir and Harlan I. Smith are being carried on in various parts of Canada. They include a study of the social organization and material culture of the Iroquois, and ethnological and linguistic research among the Malecite and Micmac Indians of New Brunswick, as well as among the Athabascan tribes of the Mackenzie Valley. Mr. Smith inspected earth works in the vicinity of St. Thomas, Ont., and has recommended the establishment of a Dominion park for the preservation of one of these, the most perfect earth work remaining in Canada east of the Rocky Mountains, as far as is at present known. Remains of ancient semi-subterranean house sites have been discovered near Banff, Alberta, and have been set aside as national monuments by the Parks Branch of the Dominion Government. The remains at Banff mark the eastern limit of this type of semi-subterranean house. Important results were obtained through the exploration of mounds in Manitoba and of shell heaps along the Canadian east coast. Extensive anthropological exhibits consisting of a synoptic series illustrating the archeology of Canada, also ethnological series illustrating the life of the west coast tribes, Eskimo, and certain eastern woodland tribes have been thrown open to the public in the Victoria Memorial Museum, Ottawa.

California.—The Department of Anthropology of the University of California, under the direction of Professor Kroeber, has undertaken a study of the average physical content of shell mounds in the San Francisco Bay region, with a view to determining the changes in Molluscan fauna, and with the ultimate purpose of securing additional information on the age of these remains.

Surveying and exploration of the mounds in this district have been temporarily brought to a close after 12 years' work, sufficient data and collections being now available for a preliminary formulation of the knowledge gained. Explorations of the shell mounds on Humboldt and San Diego bays in the extreme north and south of the state have been begun, as the first step in an extension of this line of work from the immediate vicinity of the University to cover systematically the whole of California.

A more exact comparison of the words and structure of all the languages of California has revealed many far-reaching similarities, in part entirely unsuspected, and reduces by one-half the number of distinct language stocks or families in the California region, hitherto regarded as one of the most diversified in the world. A preliminary announcement on this matter appeared in *Science* of Feb. 7, 1913, and a somewhat enlarged statement is to be found in the *American Anthropologist* for July-September, 1913.

West Coast.—The ninth volume of *The North American Indian* by Edward S. Curtis (Norwood, Mass., Plimpton Press, 1913) is largely devoted to the Salishan tribes of the Coast, more than a score of these being described with special reference to their culture and mythology. The Chimakum, Quilliute and Willapa are treated in like manner, although more briefly. Following these is an appendix with tribal summary, songs, and vocabularies.

Southwest.—This favored region comes annually to the fore. The opening of the Southwest Indian Hall at the American Museum of Natural History, New York, was the occasion for the appearance of *Indians of the Southwest*, by Dr. P. E. Goddard. This little volume is No. 2 of the Museum's Handbook Series. Its three chapters deal with the ancient peoples, modern Pueblos, and the nomadic peoples respectively. The text is supplemented by a map, numerous illustrations, and a bibliography, thus making the work a guide not only to the Museum visitor, but also to those who are less fortunate. Dr. Spinden has resumed his researches into the ceremonial activities of the Rio Grande Pueblos and Mr. Nelson has completed an archeological reconnaissance of the same region, in both instances under the auspices of the American Museum of Natural History.

Casa Grande, as the name suggests, is one of the most notable ruins of the Southwest. These ruins have recently been excavated and repaired by Dr. J. Walter Fewkes, Congress having placed with the Smithsonian Institution funds for that purpose. The report of Dr. Fewkes is the principal paper in the *Twenty-eighth Annual Report* of the Bureau of American Ethnology (Washington, 1912), which contains likewise a second paper by Dr. Fewkes, also on the Southwest, "Antiquities of the Upper Verde River and Walnut Creek Valleys, Arizona." The author concludes that the culture of these two valleys points to a sedentary rather than a nomadic people, and to a connection with both the Pueblos and the inhabitants of the Colorado Valley. The kinship with the ancient inhabitants of the Gila and Salt River valleys is still more apparent.

The Southwest is also the scene of investigations carried on jointly by the Bureau of American Ethnology and the School of American Archeology. Some of the results have appeared as Bulletin 54 of the Bureau (1913), "The Physiography of the Rio Grande Valley, New Mexico, in Relation to Pueblo Culture," by E. L. Hewett, J. Henderson, and W. W. Robbins. The various lines of evidence point to progressive desiccation of the region since the beginning of the pueblo and cliff-dwelling period, although it is admitted that the decrease in population may possibly be ascribed to other causes.

Meanwhile the linguistics of the Southwest have by no means been overlooked. The Franciscan fathers have issued from their Press at St. Michaels, Ariz., *A Vocabulary of the Navaho Language* in two volumes. This work is supplemental to the *Ethnologic Dictionary of the Navaho Language* which appeared in 1910; it represents a labor of some ten years and is especially rich in mythological information, including names of ceremonies, mythological beings, ceremonial objects, and the like. The names of 67 different Navaho clans are given. There is disappointment very well expressed in a review by J. P. Harrington that nothing new was said concerning the origin of the name "Navaho." Harrington believes with Dr. Hewett that the name found ts way into the Spanish language from the Tewa spoken about Santa Fé, N. M., in which *Navahu* means "cultivated canyons" (*nava*, cultivated field, *hu'u*, canyon).

Plains Tribes.—Under the patronage of George G. Heye the University Museum, Philadelphia, has had an expedition among the Oto Indians. Three members of the staff of the American Museum of Natural History have continued their researches in the Plains area. Drs. Wissler and Lowie studied the ceremonial organizations and social life. Mr. Skinner visited the Plains-Cree and the Plains-Ojibway, an interesting tribe of transitional culture. From the Menominee of Wisconsin Mr. Skinner obtained data on the celebrated Midewiwin ceremony of this tribe.

Algonquian Tribes.—Truman Michelson's "Preliminary Report on the Linguistic Classification of Algonquian Tribes" appeared in 1912 as one of the papers in the *Twenty-eighth Annual Report* of the Bureau of American Ethnology. The author finds that Algonquian tribes linguistically fall into four major divisions, Blackfoot, Cheyenne, Arapaho, and Eastern-Central; the latter is divisible into two subtypes, Central and Eastern. The Eastern subtype may perhaps be di-

vided into two groups, Micmac and Abnaki. The Central subtype is composed of a number of linguistic clusters: Cree-Montagnais, Menominee, Sauk, Fox, Kickapoo, and Shawnee; Ojibwa, Ottawa, Potawatomi, Algonkin, and Peoria; Delaware and Natic. The Blackfoot type bears evident signs of contact with the Sauk, Fox, and Kickapoo of the Central subtype and with Eastern Algonquian. Cheyenne affinities are with the Ojibwa of the Central Algonquian, while the linguistic affinities of the Arapaho have not as yet been determined. A map showing the distribution and interrelation of the Algonquian dialects by J. R. Swanton and the author accompanies Dr. Michelson's paper. Members of the Bureau staff have also obtained a large amount of additional material concerning the myths and legends of the Algonquian tribes.

Maine.—The Department of Archeology at Andover has continued its survey of Maine, locating some hundred or more shell heaps and village sites. Forty-eight shell heaps were found within a radius of ten miles of Bar Harbor. Several of these were examined and yielded some hundreds of bone and stone implements. Most of the coast from Blue Hill to Bar Harbor was explored and cemeteries were located at Blue Hill and Sullivan Falls; from these about 100 stone objects were taken. At Boynton's Point in the town of La Moine a shell heap of great size was partially excavated, and about 300 articles in bone and stone were taken out of the trenches. The harpoons collected by the expedition number more than 40 and represent several methods of hafting and barbing.

Lower Mississippi Valley.—Clarence B. Moore has continued his archeological survey of the South, results of which are embodied in his report on "Some Aboriginal Sites in Louisiana and Arkansas" (*Jour. Acad. of Nat. Sci. of Phila.*, 1913). The regions selected proved on the whole to be rather unproductive, and yet their investigation was necessary on account of their geographic relation to Mr. Moore's earlier work. The rare and characteristic specimens found are admirably reproduced in the report, many of them in color.

Mexico.—The International School of American Archeology and Ethnology, under the direction of Prof. Jorge Engerrand, has continued the study of the succession of civilizations in the Valley of Mexico and made researches into the ethnology, folklore, and linguistics of the State of Oaxaca as well as those relative to the Tepecanos. In the Valley of Mexico, excavations were made at Santa Lucia and Azcapotzalco. Señor Gamio, in charge of the work, also explored a small artificial mound near Santa Lucia, where he found two admirable examples of a deity, probably Tonantzin. In order to verify the analogy supposed to exist between the cultural types of Michoacan Colima, Jalisco Tepic, and the hill civilization in the Valley, a number of excavations were made in the State of Colima. From these Dr. Engerrand is able to confirm a complete analogy between the Colima types and the most ancient known in the Valley. The exploration seems to demonstrate that in Colima there is but one civilization, while in the Valley there were at least three. The entire collection of Mexican archeology excavated by the School in 1912 under the direction of Professor Boas has been purchased by the University Museum in Philadelphia.

The linguistic, ethnological, and folklore studies in Oaxaca were richly rewarded, as were also those among the Tepecanos of the Bolanos River (Jalisco). Dr. Radin found the Huave, an isolated language of Oaxaca, to be related to the Mixe. Mr. Mason's observations among the latter, like those of Professor Boas, demonstrate that the folk tales of the Indians are in a large measure of European origin, introduced after the conquest and modified by local influences.

Maya Culture.—Two notable books on Maya culture have appeared during 1913. Dr. Herbert J. Spinden's *A Study of Maya Art, its Subject Matter and Historical Development* forms Volume VI of the *Memoirs* of the Peabody Museum of American Archæology and Ethnology, Harvard University. The author's most noteworthy contributions are to chronological sequence; his analysis of the designs and the principles of Maya

architecture also deserve more than passing notice. The theory of an Old World origin for New World civilization is characterized as wild speculation. While future studies may trace it in its humble beginnings to the coast of Vera Cruz, in "all essential and characteristic features it has developed on its own ground." From the accounts of the earliest European observers it appears that the golden age of Maya civilization long antedated the coming of the Europeans. On the other hand, the religious ideas embodied in the ancient culture and the art of writing and recording time still survived.

Motives derived from the serpent strike the dominant note in Maya art, which is also tinged by the somber death symbols, as seen in the codices, sculptures, and even in architectural embellishment. Human sacrifice was not so appalling as among the Mexicans; nevertheless there is undeniable evidence of its existence. As for astronomical signs, the sun, moon, the important planets, and the more conspicuous constellations were represented. The sun symbol (normal kin sign) occurs frequently; the moon sign occurs in the codices on terms of apparent equality with the kin sign.

Maya architecture is characterized by an elaborate grouping of the city as a whole, as seen to good advantage at Copan, a massive platform mound, with terraces and sunken courts; rising from the level of the platform mound are small pyramids crowned with temples, a principal mound overlooking a large plaza in which are set up stelæ. As a rule Maya cities are built upon level ground; but in some cases, as at Palenque, the assemblage of the city is modified by an accentuated topography. The buildings seem to have been largely of a religious nature. The dwellings of the common people were probably similar to the huts still in use among the natives of Yucatan. In fact such huts are seen in fresco at Chichen Itza. Between temple and palace there is no distinct line of demarcation. As regards elevation plans, one room was seldom placed directly over another, owing to the cumbersome method of construction. The ordinary wall construction is not true masonry, but a rough concrete faced with stone. Building stones were seldom cemented together, but mortar was extensively used for floors and as a thin covering on walls.

There have been numerous attempts to correlate Christian and Maya chronology. These have been for the most part based on the Books of Chilam Balam. The author's concordance, which is presented in the form of a table, may be briefly summed up as follows: Prehistoric period, 235 B. C. to 160 A. D.; archaic period, 160 A. D. to 455 A. D.; great period, 455 A. D. to 600 A. D.; transition period, 600 A. D. to 960 A. D.; league period, 960 A. D. to 1195 A. D.; Nahua period, 1195 A. D. to 1442 A. D.; modern period, since 1442 A. D.

The relation of Maya to neighboring cultures receives interesting treatment. That an elaborate calendar system "was used with comparatively little change from the Tarascans and Otomies on the north to the tribes of Nicaragua on the south" points conclusively to ethnic affiliations throughout the region. This calendar, however, was invented and largely perfected by the Maya. Gadow points out that five of the animals represented as day signs in the Aztec calendar do not occur on the highlands of Mexico; it is, therefore, reasonable to suppose that the calendar did not originate in that region. On the other hand, all of the animals connected with the calendar are common to the Maya country.

As for cultural connections outside of Mexico, the argument centers principally around pyramids and other features of material culture, religious ideas associated with the serpent, and similarities in symbolism and art. In the New World are three large but widely separated areas where pyramids are found, western Peru and Ecuador, Central America and Mexico, and the Mississippi Valley and the southeastern part of the United States; but there is little to suggest interrelation. Of the various types of mounds in the Mississippi Valley the pyramid is the only one that offers points of resemblance, but points equally striking are offered by the

great structure at Moche, Peru, or even by the ruins at Tello, Chaldea. Central American and Mexican influence has likewise been invoked to account for the symbolism on the shell gorgets and copper plates from the Mississippi Valley; the author would account for them in other ways, believing as he does that there are "no trustworthy evidences of trade relations between the Mexicans and Moundbuilders, nor is there any sure indication of fundamental unity of culture at any time in the distant past."

On the death of Prof. Daniel Brinton in 1898, the University of Pennsylvania came into possession of all his books and manuscript, the latter including copies of manuscripts written in the Maya language in the earlier centuries succeeding the conquest of Mexico and Central America. These copies had been made by Dr. Hermann Berendt, after whose death they passed into Dr. Brinton's hands, and formed the basis for his *Maya Chronicles*, published in 1882. In order to place the whole of this body of material at the disposal of Maya scholars, the Museum authorities recently decided to publish all the manuscripts. The one chosen for the initial volume is the *Book of Chilam Balam of Chumayel.* The designation Chilam Balam is simply the title of a class of priests, and Chumayel is the name of the village in Yucatan where this particular book was found. It was compiled in the year 1782 by José Hoil, a Maya Indian, and consists of abstracts of various topics selected by the compiler. Berendt's copy, now owned by the University Museum, was made in 1868, when certain parts of the text were more perfect than at present, a circumstance giving added value to the copy. The present publication is not from Berendt's copy, but is a facsimile of Hoil's compilation at Merida.

South America.—In *Aborigines of South America*, the unfinished work of Col. George Earl Church (edited by Sir Clements R. Markham, London, 1912), the student may find a work of distinct ethnologic value. Colonel Church believed the original home of the Caribs to have been in Paraguay, whence they spread over a large portion of South America and even found their way to the West Indies.

Peru.—For a popular account of the Peruvian Expedition of 1912 under the auspices of Yale University and the National Geographic Society, directed by Prof. Hiram Bingham, the reader is referred to Professor Bingham's paper "In the Wonderland of Peru" (*Nat. Geogr. Mag.*, XXIV, April, 1913, pp. 387-573). The chief work was the uncovering of Machu Picchu, which had been discovered by Professor Bingham on a previous expedition (1911). Machu Picchu is a wonderful city of white granite perched upon a mountain top. A striking feature is its row of three large windows that command a magnificent prospect. For this reason the author believes Machu Picchu to be the legendary "Tamputocco," the hill with three openings or windows, whence came the three tribes that eventually settled at Cuzco and founded the Inca empire.

Moche.—In the Trujillo Valley are two well-known ruins, Chanchan and Moche. In the graves of Chanchan black vessels form the principal ceramic type. Moche is, on the other hand, noted for its polychrome ware. The results of Dr. Max Uhle's investigations at Moche are given in the *Journal de la Société des Américanistes de Paris* (N. S., X, 1913). Uhle concludes that both the *Huaca de la Luna* and the *Huaca del Sol* at Moche belong to the polychrome ceramic period which is wholly anterior to the period of Tiahuanaco. Both the monuments, first the *Huaca de la Luna* and afterward the *Huaca del Sol*, had fallen into disuse before the Chimu period with its well-known black pottery, and likewise before the period of the Incas.

Tiahuanaco.—Excavations conducted by Dr. Otto Buchtien, director of the National Museum of Bolivia, have been particularly fruitful. He began in the neighborhood of the present cemetery, and at a depth of from one to three metres found quantities of pre-Inca pottery, of which many articles were in a perfect state of preservation. Among the vases worthy of special mention are cups of classic form on which the colors have retained their pristine brilliancy. The

diversity of ideographic or pictographic signs on these vases calls for special study, as do those on the numerous broken flagstones. Among the small objects is a human figurine in silver which apparently illustrates the style of clothing worn during that epoch. Human crania, showing various forms of artificial deformation, were gathered.

Julius Nestler contributes an important paper on Tiahuanaco (*Mitt. d. k. k. Geogr. Ges. in Wien*, LVI, 1913), based on his recent investigations. He has discovered a fragment of a second great gateway sculptured in a manner similar to that of the "sun-door," the latter conceded to be one of the most remarkable ancient monuments in all South America. These discoveries are particularly timely in view of the forthcoming nineteenth International Congress of Americanists, which will hold a session at La Paz, Bolivia, to follow the principal session, which will be held Oct. 5-10, 1914, in the new National Museum in Washington.

Lesser Antilles.—For the preparation of a memoir on the *Culture History of the Aborigines of the Lesser Antilles*, an expedition under the auspices of the Bureau of American Ethnology and George G. Heye, of New York, was conducted by Dr. Fewkes, who visited Trinidad, Barbados, St. Vincent, and other islands of the West Indies, where he made extensive excavations of shell-heaps, particularly in Trinidad and St. Vincent, yielding very interesting collections of pottery and other objects. Dr. Fewkes also carried on archeologic studies which proved to be especially important in throwing light on the material culture of the former aborigines of the coast adjacent to South America.

Museum and Other Expeditions.—The most important event of the year 1913 for the Department of Anthropology of the Field Museum, Chicago, was the return of Dr. A. B. Lewis from a four years' expedition among the Melanesian Islands of the South Pacific. Dr. Lewis visited dozens of villages in German, English, and Dutch New Guinea and Admiralty Islands, New Ireland, New Britain, the Solomons, New Hebrides, and New Caledonia, and other lesser known islands of that region. The results of the expedition are approximately 20,000 specimens, many hitherto unknown to science, and a great deal of valuable ethnologic data.

The resources within the Museum have been directed largely toward pushing to completion the installation of the Philippine and Chinese collections. The vast Philippine collections are now completely installed, occupying more than 150 cases and covering practically every wild tribe of the Islands from the extreme north to the extreme south. The Chinese collections secured by Dr. Berthold Laufer as a result of a three years' expedition in the interior of China have practically all been installed. This collection already occupies seven halls, and the Tibetan collections made during the same expedition, awaiting installation, will require at least three additional halls. Publications keep pace with the amassing of these collections. Of special importance is Dr. Laufer's *Jade, a Study in Chinese Archæology and Religion* (*Field Mus. of Nat. Hist. Publs.*, anthrop. ser. X, 1912). Fay Cooper Cole's *Chinese Pottery in the Philippines* also appeared in 1912 (*ibid.*, XII, No. 1).

The University Museum, Philadelphia, has sent an expedition to investigate the tribes living in the more remote head waters of the Amazon tributaries. The expedition has been in the field since June last, and is now working among the Carib and Arawak tribes in the unexplored region between Brazil and British Guiana. This expedition, which is under the direction of Dr. Farabee, will remain in the field during a period of three years and will make ethnological studies in widely separate districts. The Museum has also maintained during the last year an expedition among the Bagobos of Southern Mindanao in the Philippines, making ethnological collections.

Africa.—*Und Africa Sprach* is the title of a projected series of four volumes giving the results of the third (1910-12) of the German expeditions into the African interior, under the direction of Leo Frobenius and with the support of the Hamburg Museum of Ethnology. The first volume, entitled *Auf den Trümmern der Klassi-*

schen Atlantis, deals with the religious, social and political life of Yorubaland, as well as the archeology of the country, developing in connection with the latter the theory of a connection between the culture of Yoruba and that of classic antiquity.

Paleolithic Art.—By degrees Paleolithic stations are being rediscovered. The large rock shelter of Colombière, valley of the Ain, some 30 miles southwest of Geneva, is an example. Known since 1875, it had been only superficially explored. The important discoveries of Dr. Lucien Mayet, of the University of Lyons, and M. Jean Pissot, of Poncin, date from October, 1913. The trench they dug revealed in section: (1) at the top, neolithic; (2) Magdalenian, the upper portion of which with the neolithic had been disturbed by earlier investigators; (3) a layer of fine sand with débris from the overhanging rock, one metre thick, in which no relics were found, representing a long period of nonhabitation by man; and (4) an Aurignacian layer with fossil remains of the mammoth, woolly rhinoceros, reindeer, and horse. Here also was a workshop left by Aurignacian man, flint tools, and rare engravings characteristic of the epoch.

The principal find is a large fragment of mammoth bone on which are engraved human figures; a head and upper part of the body, including an outstretched arm and hand; likewise a figure with head and feet missing, probably a female. Both these engravings are in profile, the view easiest to master by a primitive artist working in outline. Fairly good examples of the human form in the round and in relief dating back to the Aurignacian epoch are already known.

Engraved figures are rare, and so far as the head is concerned are little more than caricatures. The example from Colombière is no exception in this respect, and, curiously enough, resembles two engraved human heads previously reported, one from the cavern of Font-de-Gaume (Dordogne) and the other from the Grotte des Fées (Gironde). In the Aurignacian layer were found also pebbles with engraved figures of the bison, *Felis*, horse, and wild sheep.

SOCIOLOGY

HERBERT N. SHENTON

The Place of Sociology among the Sciences.—Sociology is growing in favor with men of affairs, practical men of various professional and commercial pursuits. Some of the best newspapers in the country are regularly consulting the leading sociologists concerning the essentials calling for comment in every serious social crisis. Men on the bond market and men in political careers are recognizing the superiority due to a proper sociological equipment. The leading physicians of the country are organizing sociological societies, and the clergy are ambitious to learn sound social theory. In short, sociology is gaining recognition, because the facts, the generalizations, the processes, the correlations, and the laws which the science by careful induction has formulated, have been found to work.

The influence of sociology upon other sciences and their recognition of the contributions of the sociologists were the principal features of the annual meeting of the American Sociological Society (*Pub. Am. Sociol. Soc.*, VII). Albion W. Small, in closing his presidential address, said: "In no period of history has it been possible for the social scientist to perform more fundamentally constructive service than present conditions throughout the world demand." G. Stanley Hall claimed a closer relation between sociology and psychology than either has as yet realized. Paul Monroe stated that education as a social art has become an entirely new process, due to a growing perception of human relationships. The writing of history, according to Carl Becker, is destined to larger usefulness and less danger of running into a barren scholasticism because of its relation to the social sciences. Charles E. Merriam spoke of the large amounts of rational social legislation, which, based on the scientific study of so-

ciety in equilibrium, might aid in avoiding social revolution by gradually bringing about the essential social changes and adjustments. Simon N. Patten admitted that the neglect of the social ideas upon which its theories rested had been hitherto a weakness of economics. Roscoe Pound and Eldon R. James demonstrated the need on the part of a lawyer of a knowledge of the social processes, relations, and conditions. Francis G. Peabody discussed the socialization of religion due to the clearer ideas of social relationships and the awakening to the fact that social conditions were in a large part artificial and demanded for their proper adjustment more than a *laissez-faire* policy on the part of the church.

The Inductive Method.—The inductive method has continued to be emphasized, especially in the eastern sections of the United States. Uniform schedules of observations, checking up present social theories and attempting to discover new social regularities, associations, or laws, are being used simultaneously in several of the universities and colleges in order to obtain aggregate results which will have a significant value. Warren H. Wilson, Superintendent of the Department of Church and Country Life of the Board of Home Missions of the Presbyterian Church, has made a series of elaborate inductive studies of rural social conditions in Ohio, Indiana, Tennessee, Missouri, and Maryland. The effort, made definitely to determine all of the social facts and forces by a careful tabulation of the conditions and phenomena, has furnished us with a most excellent scientific sociological study of rural social life. The most recent of these surveys has been incorporated into a bulletin of the U. S. Bureau of Education. Two rural communities of considerable size have been assigned to the board under the directorship of Dr. Wilson, for experimentation and further inductive study.

A valuable contribution to methodology has been made by Al. Kaufmann in his recent *Theorie und Methoden der Statistik*. The first part of this manual is devoted to a statement of the theoretical foundation of the statistical method, and the second part to the practicum. A new revised and enlarged edition of E. L. Thorndike's *Mental and Social Measurements* contributes further methods of measuring social groups.

Demography.—*Demography* is the title of Volume IX of the *Transactions* of the Fifteenth International Conference on Hygiene and Demography. The major part of the volume is devoted to the study of vital statistics, to their development during the last decade in the United States, to measures needed for the immediate future, to the present condition of municipal vital statistics in various countries, and to special problems, such as infant mortality and mortality from special causes. The volume also presents careful studies of the relation of rural and urban populations, as shown by the census in the United States and Canada, to the problems of public health, the present condition of criminal statistics in the United States and European countries, statistics of pauperism, an international statistical examination of women in industrial life, as well as more intensive and limited studies of small communities. The essentials for a sociological study of the family, marriage and divorce, are in the papers which appear on the chapter on "American Statistics of Marriage and Divorce" and in the chapter on "Eugenics and Demography."

Teaching.—Two developments in the teaching of sociology have made unusual progress during the past year. The first is the introduction of sociology as an undergraduate study. The increasing demands for at least the elements of sociology have caused its addition to the department of social science in a rapidly increasing number of colleges and university extension courses, and this the more so because of the demonstration of its previous successful introduction into colleges of high standing. Foundation work in sociology is now being taught in some of the best high schools and academies with gratifying results, and its more general introduction will probably be in proportion to the degree in which teachers receive special preparation for such instruction while in preparatory training at normal schools and colleges. Prof.

John M. Gillette has discussed this process in an article, "Sociology as High School Subject" (*Educational Review*, XLV, March, 1913). The second development is the introduction of sociology into the curriculum of even the more conservative theological seminaries. A social, and, in some cases, a sociological point of view, is more and more required by the various churches from all of their candidates for the ministry, and a new social catechism, based on the inductions of sociology, is rapidly being formulated.

It is worthy of note that Josef Schumpeter, of the University of Gratz, is the first Austrian sociologist to deliver a course of lectures in this country. Professor Schumpeter lectures during the season of 1913-14 at Columbia University on the "Problem of Social Classes." Discussing first the origin and nature of social classes, his course deals with the psychical superstructure of the fact of class distinction and with its various political and social aspects.

Necrology. — Sociology suffered a very real loss in the death of Lester Frank Ward on April 18. Tributes to him, the first president of the American Sociological Society, appear in the July number of the *Journal* of that Society. An appreciation by E. A. Ross appeared in the *Popular Science Monthly* for July.

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ECONOMICS

Henry W. Farnam

Tariff and Income Tax.—Any attempt to summarize in a few pages the economic work of the year must necessarily be fragmentary and reflect more or less the point of view of the author. In a small book, published early in the year (*The Economic Utilization of History*, Yale University Press), the present writer expressed the opinion that history might well be considered by the economist as a series of experiments, the detailed study of which would well reward his efforts. To those who take this view, one of the most important economic events of the year was the adoption by Congress of the new tariff and of its twin brother, the income tax (see also I, *American History;* and XIV, *Public Finance*). The tariff law is interesting to the economist, because it may be fairly said to have resulted in part at least from the teachings of economists during the past 40 years or more. Ever since the days of Arthur Latham Perry, William Graham Sumner, and David A. Wells, economists as a class, whether or not they have embraced the extreme doctrines of free trade, have stood for a material reduction in our tariff. Few have advocated the theory of protection, and still fewer, if any, have been willing to defend the extremely high rates which, in spite of platform promises, Congress seemed unwilling to reduce. At last the Republican party hit upon a theory which, while maintaining intact the doctrine of protection, opened the way for a re-

duction in rates. This was the doctrine of a "scientific tariff," based upon the carefully ascertained difference between the cost of production in the United States and abroad. Its realization was entrusted to President Taft's Tariff Commission. The valuable and extensive statistical material gathered by this Commission was not utilized by the Sixty-second Congress, but the Democratic majority of the Sixty-third, though they opposed the Commission, were nevertheless willing to profit by its work. Thus, under the theory of the "competitive tariff," so adjusted as to give the consumer the benefit of foreign competition, they applied a doctrine not so very different from the Republican theory of "scientific tariff." The result has been, not a tariff for revenue only, but yet substantial reductions in the more important schedules, particularly textiles and metals, and such important additions to the free list as wool, sugar, steel rails, and lumber. The new law thus marks a turning point in our tariff history, and a careful observation of its effect on prices, on domestic industries and on foreign trade should yield valuable results to the economist.

General Works.—American economists have published comparatively little during the past year in the way of pure theory or general treatises. Prof. Henry R. Seager has, however, issued a fourth edition, revised and enlarged, of his *Principles of Economics*, originally published in 1904 (Holt). In this edition especial attention is given to the subjects of social insurance, socialism, etc., which have been growing in public interest within the last ten years. An interesting novelty in the line of economic teaching is presented in the book issued by Leon C. Marshall, Chester W. Wright, and James A. Field, three members of the economic faculty of the University of Chicago, under the title *Materials for the Study of Elementary Economics* (University of Chicago Press). This book contains a collection of extracts from standard works, presenting "not so much authoritative formulations of economic laws as concrete cases of material embodying such laws." Not only is this collection calculated to stimulate the inductive study of economics, but the book itself is the result of the application of the inductive method, since, in the selection of the material, the editors have been guided by actual class-room experience.

Immigration.—The general interest in the problems arising in connection with our foreign population is seen in the 41 volumes of the Immigration Commission, abstracts of which appeared some time ago, as well as in the publication of several books, such as Frederick J. Haskin's *The Immigrant* (Revell), Frank J. Warne's *The Immigrant Invasion*, and Henry Pratt Fairchild's *Immigration*. Though the title of Professor Fairchild's book is general, and though it contains in its introductory part a survey of the world causes which lead to immigration, it deals mainly with the United States, surveying the history of immigration and of legislation regarding it, and discussing the more important questions which arise in connection with it.

Labor.—Among books dealing with labor problems mention may be made of Miss Mary Van Kleeck's *Women in the Bookbinding Trade* (New York, Survey Associates), and Theodore W. Glocker's *Government of American Trade Unions* (Johns Hopkins Press). James H. Boyd's elaborate treatise in two volumes on the laws of compensation for workmen (Bobbs-Merrill), though not written especially from the point of view of an economist, contains a full account of our state legislation down to the time of publication. Unfortunately for the publishers, the activity of our legislatures prevents all books of this kind from remaining for any considerable time up to date. During the past year the number of states having some form of indemnity for accidents has increased from 16 to 22, and anyone who would keep himself posted on this and kindred topics must go to such publications as the *Review of Labor Legislation*, published quarterly by the American Association for Labor Legislation, or the *Survey*, published weekly.

Business Cycles and the Currency.—An excellent example of the inductive method is seen in Prof. Wesley C. Mitchell's large quarto volume on

Business Cycles (University of California Press). The rhythmical nature of modern business has long been familiar to economists and many theories have been propounded to account for it. The distinguishing feature of Professor Mitchell's work is that by studying intensively a limited time (for the book only deals with the period since 1890) but a large area, the author marshals a vast amount of statistical material to show why each phase of the cycle, prosperity—depression—crisis—prosperity, inevitably "breeds" its successor. While this rhythm seems to be universal, it differs much in severity according to the country. In the United States the crisis degenerates into a panic much more readily than in England, France, or Germany. This, according to Professor Mitchell, is due to differences in banking organization and practices. Hence great interest attaches to the proposition to reform our banking and currency system. A notable contribution to this topic has been made by former Representative Charles N. Fowler, who has specialized on this subject for years, and whose legislative activity on behalf of banking reform is well known, in *Seventeen Talks on the Banking Question* (Elizabeth, N. J., Financial Reform Publishing Co.). A cognate subject is treated by Professor James E. Hagerty in his *Mercantile Credit* (Holt). This is an intensive study of one of the many forms of modern credit, preceded by a short sketch of the history of credit in general, and followed by a study of bankruptcy legislation in the United States.

The Cost of Living.—The subject of the currency is intimately connected with prices, wages, and the cost of living. Indeed, according to Prof. Irving Fisher, whose *Purchasing Power of Money*, originally issued in 1911, has recently appeared in a second and revised edition (Macmillan), the changes in the volume and rapidity of circulation of money are the most important elements in price changes. Professor Fisher has devised an ingenious plan for stabilizing our measure of value by substituting for a dollar of fixed weight, but varying purchasing power, what would be virtually a dollar of varying weight but fixed purchasing power. He has published numerous articles on this subject, one of the most recent of which appeared in the September number of the *Report of the International Institute of Statistics*. In coöperation with a number of other economists, in the United States and abroad, he is trying to bring about an international conference on the high cost of living.

Public Finance. — The student of taxation will welcome the eighth edition of Prof. Edwin R. A. Seligman's *Essays on Taxation* (Macmillan). This authoritative book, which began with 13 chapters, has now grown to a volume of 21 chapters and has almost doubled in size. Frederick A. Wood's *Finances of Vermont* (Longmans) is one of a series of studies of state finances prepared under the immediate direction of Prof. Henry B. Gardner for the Carnegie Institution of Washington, as is also W. C. Fankhauser's *Financial History of California* (University of California Publications in Economics, Vol. 8).

Corporations.—Dr. S. J. Buck's *Granger Movement* (Harvard University Press), though it covers but a single decade of history, deals with efforts to fix minimum rates for railroads which have had far-reaching consequences. At the time of its enactment the "granger legislation" produced comparatively little effect, and was considered to be worse than futile by many economists, but it has nevertheless established the principle of the right of the state to regulate a business which is public in its nature. A more general discussion of the important economic railroad problems of the day will be found in Dr. A. M. Sakolski's *American Railroad Economics* (Macmillan). Prof. Lewis H. Haney's *Business Organization and Combination* (Macmillan) is, in the main, a description of the various types of business organization existing in the United States with particular attention to the corporation. This the author would retain, but make more useful by requiring greater publicity and by preventing clashes of interest, both within the corporation and between the corporation and the public.

XXIX. PSYCHOLOGY AND PHILOSOPHY

PSYCHOLOGY

HERBERT SIDNEY LANGFELD

General.—Important among the discussions of fundamental principles is E. L. Thorndike's article, "Idea-Motor Action" (*Psych. Rev.*, March, 1913). He contends, contrary to the theories of James, Washburn and others, that it is false that an idea tends to produce the act which is like it. According to the results of a *questionnaire* sent to the members of the Psychological Association, a large majority agree with his views. The relation of psychology to philosophy is at present a most vital problem both from the practical side of the relation of the departments in the colleges and from the deeper theoretical significance. R. M. Ogden, in "The Relation of Psychology to Philosophy and Education" (*ibid.*, uable re[illegible]13), presents examples from

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[illegible] ing o[illegible] logical [illegible] cember had this same chief topic of discussi[illegible] haviorists more and more the close co[illegible] between psychology and the na[illegible] sciences. A recent important wo[illegible] is M. Parmelee's *Science of Human Behavior: Biological and Psychological Foundations* (MacMillan's), which discusses physico-chemical behavior, the behavior of the lower animals, the evolution of animal behavior, and the principles of human behavior.

Psychological Methods.—The opposition to the introspective method re- ferred to last year (*A. Y. B.*, 1912, p. 689) continues with the same vigor. J. B. Watson, the chief ponent of this movement in A[illegible] defends his position in "Psychology as the Beh[illegible] It" (*Psych. Rev.*, March, 1913). He says psychology needs introspection as little as do the sciences of chemistry and physics. For example, a registration of the speech mechanism will probably give us all we need to know about the thought processes. He adds that it would be better if subjects were dumb and experimenters deaf. M. W. Calkins severely criticizes Watson's position in "Psychology and the Behaviorist" (*Psych. Bull.*, July, 1913). J. R. Angell, in his article "Behavior as a Category of Psychology" (*Psych. Rev.*, July, 1913), is much less radical in his views than Watson. Although he says, "I want to see just how ideas and feelings embody themselves in action," yet he admits that "what happens between the time a stimulus affects a peripheral organ and the later time at which some reaction is made we can often only judge with approximate accuracy provided the individual concerned tells us what has passed in his mind during the interim." Among the introspectionists themselves there is discussion as to method. E. B. Titchner, in "The Method of Examination" (*Am. Jour. of Psych.*, July, 1913), criticizes the method of the Würzburg School in experimenting on the thought processes as affording neither sufficient objective check nor opportunity of repetition, and advocates a method similar to that of N. Ach, which employs systematic introspection.

Experimental Human Psychology.—[illegible] begin with investigations on the [illegible]ory processes, there is a paper on [illegible] Sensory Threshold for Faradic [illegible]ulation in Man," by E. G. Mar- [illegible] L. Porter and L. B. Rice [illegible] *Rev.*, May, 1913), which de- [illegible]exes an accurate method for ob- [illegible]methery constant measurements [illegible]itchelld for faradic current. S. I.

Franz, in a paper on "The Accuracy of Localization of Touch Stimuli on Different Bodily Segments" (*ibid.*, March, 1913), shows that light touch is more accurately located than heavier pressure. C. E. Ferree states in "The Fluctuation of Liminal Visual Stimuli of Point Area" (*Am. Jour. of Psych.*, July, 1913) that the fluctuation of liminal visual stimuli is due to adaptation and recovery of the eye and not, as has been asserted, to accommodation of that organ. Among the studies of the higher mental processes, R. Dodges's paper, "Mental Work, A Study in Psycho Dynamics" (*Psych. Rev.*, Jan., 1913), is a model treatise from a behaviorist point of view. It has been found that in calorimeter tests the pulse rate is directly related to the amount of metabolism. It is assumed that the latter is directly related to the amount of mental work. Therefore Dodge has measured this amount by the pulse rate. He shows that the pulse of students during examination is more rapid during the first part of the period, when, as some assert, most of the mental work is performed. Most of the investigations on the higher processes continue to employ more or less introspection. R. Pintner maintains, in "Inner Speech During Silent Reading" (*ibid.*, March, 1913), that articulation during reading is a habit but not necessary to the understanding. W. B. Pillsbury affirms, in the "Fluctuation of Attention and the Refactory Period" (*Jour. of Phil., Psych., and Scientific Methods*, March, 1913), that the short waves of attention are related to the latest period and period of recovery of the sensory neurons. Several treatises on the perception of rhythm include those of P. F. Swindle, "On the Inheritance of Rhythm" (*Am. Jour. of Psych.*, April, 1913), and of C. S. Ruckmich, "The *Rôle* of Kinæsthesis in the Perception of Rhythm" (*ibid.*, July, 1913). H. L. Hollingsworth states, in "Judgments of Similarity and Difference" (*Psych. Rev.*, July, 1913), that one is more consistent when judging if things are similar than if they are different. There are also a number of investigations on mental efficiency. E. O. Finkenbinder, in the "The Curve of Forgetting" (*Am. Jour. of Psych.*, Jan., 1913), shows that for most people the morning hours are the best for learning. K. M. Dallenbach, in "The Relation of Memory Error to Time Interval" (*Psych. Rev.*, July, 1913), states that the certainty of the observer's reply is in direct relation to the fidelity of the answer. F. L. Wells, in "Practice and the Work Curve" (*Am. Jour. of Psych.*, Jan., 1913), calls attention to the ever-increasing importance of individual differences. G. C. Myers, in a study in "Incidental Memory" (*Arch. of Psych.*, Feb., 1913), shows what a strong factor our interest is in remembering details of even familiar objects. These results are of value for law and education.

Comparative Human Psychology.—The treatises upon child psychology, upon character and mental groups, upon heredity, etc., are very numerous. The *Psychological Bulletin* for Oct. 15, 1913, gives a good summary of this literature. The interest in folk psychology seems to be on the increase in America, stimulated by the visit of Felix Krüger, the German exchange professor. In his article, "Magical Factors in the First Development of Human Labor" (*Am. Jour. of Psych.*, April, 1913), he says: "We are unable to understand the psychological continuity of human development towards an individual and social form of life without genetically taking into account the magical and religious reaction of primitive mind upon every impression, experience, and to every situation of vital importance."

Abnormal Psychology.—The influence of the Freudian method of psycho-analysis for the treatment of mental diseases and the explanation of dreams and abnormal condition is as noticeable as ever. A new journal which has just appeared is the *Psychoanalytic Review; a Journal Devoted to an Understanding of Human Conduct*, edited by W. A. White and S. E. Jelliffe. Freud's *The Interpretation of Dreams* (MacMillan's) has just been translated from the German. The *Journal of Abnormal Psychology* has published several important papers by followers of the Freudian principles, including "A Simple Fobia," by Ernest Jones (June-July), and "How Far is Environment Re-

sponsible for Delusions," by E. E. Southard and A. W. Stearns (June-July). E. G. Boring has discussed "Introspection in Dementia Precox" (*Am. Jour. of Psych.*, April, 1913). Mental tests continue to be used on defectives with good results, although, as F. M. Freeman says (*Psych. Bull.*, July, 1913), "the most widespread attitude towards tests is constructively critical. There is a belief that tests are good for something, but that careful testing of the tests themselves is necessary in order to determine the limits and conditions of their usefulness." H. H. Goddard, in "Standard Methods for giving the Binet Test" (*Bull. No. 10*, Vineland Training School), has come to the conclusion that only trained experimenters are capable of getting reliable results in the Binet tests. (See also *XVI, The Laboratory in Social Research.*)

Animal Psychology.—As in the past few years, there have been a number of excellent systematic investigations which may be grouped under the two headings of sensation and perception, and instinct and learning, processes. Under the first group may be mentioned H. C. Stevens's "Acquired Specific Reaction to Color in *Oregonia Gracilis*" (*Jour. of Animal Behavior*, May-June, 1913), which reports that when crabs were put in aquaria and covered with different colored glass they acquired a positive reaction towards the particular color used. J. B. and M. I. Watson have found, in "A Study of the Responses of Rodents to Monochromatic Light" (*ibid.*, Jan.-Feb., 1913), that the rodents responded only to different intensities of monochromatic light. F. M. Gregg and C. A. McPheeters, in the "Behavior of Raccoons to a Temporal Series of Stimuli" (*ibid.*, July-Aug., 1913), affirm that there is no adequate proof of Cole's assumption that raccoons use imagery in the learning process. H. C. Bingham, in an investigation on chicks reported in "Size and Form Perception in *Gallus Domesticus*" (*ibid.*, March-April, 1913), found that chicks could make accurate size discriminations. In the second group is an important study by R. M. Yerkes, "The Heredity of Savageness and Wildness in Rats" (*ibid.*, July-Aug., 1913); Yerkes has found that both these characteristics are inherited. J. F. Shepherd and F. S. Breed have described the pecking instinct of the chick in "Maturation and Use in the Development of an Instinct" (*ibid.*, July-Aug., 1913). W. Craig's article, "The Stimulation and the Inhibition of Ovulation in Birds and Mammals" (*ibid.*, May-June, 1913), throws light on another instinct. W. S. Hunter has written a monograph on "The Delayed Reaction in Animals and Children" (*Behavior Monographs*, Vol. II, No. 1). L. W. Sackett, in his monograph "The Canadian Porcupine: a Study of the Learning Process" (*ibid.*, No. 2), reports investigations of the porcupine in learning specific reaction and in discrimination. S. I. Franz reports, in "Observations of the Preferential Use of the Right and Left Hands of Monkeys" (*Jour. of Animal Behavior*, March-April, 1913), that of six monkeys one preferred the right hand and two the left hand. K. S. Lashley and J. B. Watson report, in "Notes on the Development of a Young Monkey" (*ibid.*), the temporal sequence in the development of such instincts as grasping, sneezing, motor responses to sound, reflex grasping of an object, etc.

Applied Psychology.—In educational psychology emphasis continues to be laid upon the problem of grading and of measuring efficiency. In the *Journal of Educational Psychology* are W. Pyle's "Standards of Mental Efficiency" (Feb., 1913) and M. Calfee's "College Freshmen and Four General Intelligence Tests" (April, 1913). I. R. and A. J. Rosanoff have made extensive tests on school children and have found a definite correlation between association of words and mental capacity ("A Study of Association in Children," *Psych. Rev.*, Jan., 1913). The first volume of E. L. Thorndike's *Educational Psychology*, entitled *The Original Nature of Man* (Teachers' College), and P. M. Magnusson's *Psychology as Applied to Education* (Silver, Burdett & Co.) have appeared. Psychological principles continue to be applied to all forms of practical life. J. H. Wigmore, in *Principles of Judicial Truth as Given by Logic, Psychology and General Ex-*

perience (Little, Brown & Co.), discusses narration, memory, motive, emotion, bias, habit, etc., in testimonial and circumstantial evidence. H. Münsterberg has shown further possibilities of the practical application of psychology. His *American Patriotism* (Moffatt, Yard & Co.) contains an essay on "Psychology in the Navy," which was delivered as an address before the Naval War College. In "The Mind of the Juryman" (*Century Mag.*, Aug., 1913) Münsterberg describes a series of tests to determine the factors influencing the final decision of a jury. It was found with men that it was the argument which changed the vote and not the knowledge of how the other men voted. Women, on the other hand remained, in general, unmoved by the argument, and were more susceptible to example.

PHILOSOPHY

Ralph Barton Perry

General Philosophy, Metaphysics and Theory of Knowledge.—With the exception of the interest in religion, which will be discussed below, the two interests that have been most prominent among English-speaking philosophers during the past year have been the elaboration and criticism of the Bergsonian philosophy, and the controversy between realism and idealism.

An authorized interpretation of Bergson by the well-known radical Edouard LeRoy has been translated and published under the title, *A New Philosophy: Henri Bergson.* An authorized translation of the *Introduction to Metaphysics* makes virtually all of Bergson's works available in English. The best critical articles on his philosophy are those written by A. O. Lovejoy under the title "The Practical Tendencies of Bergsonism" (*Int. Jour. of Ethics*, April and July, 1913). The first of these articles is a critique of Bergson's anti-intellectualism, and the second an interesting discussion of the relations between Bergsonism and the syndicalist philosophy as represented by M. Sorel. George Santayana's "Philosophy of Henri Bergson" (in his *Winds of Doctrine*) is remarkable for the felicity and acuteness of its characterization. F. Thilly's presidential address, "Romanticism and Rationalism," before the American Philosophical Association in December, 1912, and since published in the *Philosophical Review* (March, 1913) was largely devoted to a very telling arraignment of Bergson as a romanticist.

The most important constructive statement of the realistic position that has appeared during the year is contained in the articles of the English philosopher S. Alexander, entitled "Collective Willing and Truth" (*Mind*, Jan. and April, 1913). He defines truth as coherent social belief, as goodness is coherence of wills in society. The second article contains an interesting discussion of the relation between truth and beauty. The articles are significant of the extent to which a large admixture of pragmatism is consistent with realistic first principles. W. T. Marvin, in his *First Book in Metaphysics*, has presented the American new realism in concise textbook form. F. J. E. Woodbridge, in his article "The Deception of the Senses" (*Jour. of Philos.*, Jan. 2, 1913), has contributed to the realistic theory of perception. G. Fullerton, in his articles on "Percept and Object in Common Sense and in Philosophy" (*ibid.*, Jan. 30 and March 13, 1913), has appealed to common sense in support of a realistic view. W. B. Pitkin ("Time and the Percept," *ibid.*, June 5, 1913) has attempted upon realistic grounds to explain the principal difficulties that arise in connection with the relation of real and perceptual time. These articles illustrate a tendency among realists to concentrate attention upon the problem of perception. The German realist O. Külpe, well known to English readers through his earlier books and articles, has recently published a systematic defense of realism under the title *Die Realisierung*, which is notable for being one of the few signs of an interest in this point of view in the native land of idealism. In English-speaking countries realism is at

present the favorite object of philosophical polemics, proving that it has at least succeeded in getting a hearing. Among the articles of this class that have appeared in American periodicals, the following are deserving of special mention: J. W. Scott, "Idealism as Tautology or Paradox" (*Philos. Rev.*, Sept., 1913), a defense of idealism in which the justice of much of the realistic criticism is admitted; A. O. Lovejoy, "Error and the New Realism" (*ibid.*, July, 1913), and "On Some Novelties of the New Realism" (*Jour. of Philos.*, Jan. 16, 1913), criticisms of realism with especial reference to the problems of perception; M. R. Cohen, "The New Realism" (*ibid.*, April 10, 1913), a very acute paper written in a spirit of fundamental agreement; G. A. Tawney, "Methodological Realism," and G. P. Adams, "Mind as Form and as Activity" (*Philos. Rev.*, May, 1913), the latter a defense of the idealistic view of mind as incapable of being known as an object. In England the most notable reply of idealism to its realistic critics was the Adamson Lecture for 1913, on "The Distinction between Mind and its Object," a criticism of the position of S. Alexander and of the American group of realists by B. Bosanquet, at present the leading mind of the idealistic party. G. Santayana's notable book *Winds of Doctrine* contains an elaborate and brilliantly written criticism of the realism of B. Russell, with special reference to the conception of good. Among replies of realists to their critics, one should mention the articles of W. B. Pitkin and R. B. Perry (*Jour. of Philos.*).

Several books stand apart from these more prominent controversial topics, but may well prove in the end to be of more substantial importance. L. J. Henderson's *The Fitness of the Environment* is described by its sub-title as "An Inquiry into the Biological Significance of the Properties of Matter." It is the work of a chemist who happens to possess both acquaintance with philosophical issues and the capacity to employ his scientific competence with reference to them. The thesis of this book is that the environment is adapted to life, and that if the principle of teleology is to be argued for the one, it may equally well be argued for the other. L. T. Hobhouse's *Development and Purpose*, although written by a philosopher, is naturalistic in its sympathies, and opposed to the traditional idealism. All the more remarkable, therefore, is the author's conclusion that the course of nature can be explained only by the assumption of a necessary progress, determined by mind.

Ethics.—The most noteworthy event in this field in America is the selection of the following subject for the next annual meeting of the American Philosophical Association: "The Problem of the Relation of Existence and Value, including their relation both as facts and as concepts, and also the Relation of a Theory of Existence to a Theory of Value." The discussion of this problem promises to give a new turn to the idealistic-realistic controversy, as the crucial issues involved in that controversy all find an application here. At the same time the selection of this topic indicates a growing recognition in America of the independent (general) importance of a theory of value.

The past year has also witnessed the organization of a permanent association to be called the Conference on Legal and Social Philosophy. The first meeting of this Conference was held in New York in April, with "The Relation of Law to Social Ends" as the topic of discussion. Among the papers presented, some of which have since been published, were the following: "The Philosophy of Law," by Roscoe Pound; "The Relation between Legal and Political Theory," by W. W. Willoughby; "The Conception of Social Welfare," by Felix Adler; "The Content of Social Justice," by S. N. Patten, and "The Process of Judicial Legislation," by M. R. Cohen. The Conference arose from the need felt, and formally recorded by the Association of American Law Schools, for a conscious philosophy of law. Informal inquiry disclosed a similar interest on the part of moral and social philosophers, and this new organization promises to bring about a stimulating and mutually helpful contact between these two groups of thinkers. Other important articles significant of the same

tendency are M. R. Cohen's "Jurisprudence as a Philosophical Discipline" (*Jour. of Philos.*, April 24, 1913), and H. A. Overstreet's "Philosophy and our Legal Situation" (*ibid.*, Feb. 27, 1913).

The question of the teaching of ethics in colleges has received considerable attention during the year. The subject had been one of the topics for discussion at the 1912 meeting of the Western Philosophical Association, and a paper contributed to that discussion, "The Essentials of a First Course in Ethics," by G. D. Walcott, appeared in the *Journal of Philosophy* at the opening of the year. More recently G. C. Cox has published in the same Journal (June 19, 1913) an article entitled "The Case Method in the Study and Teaching of Ethics," in which the author has described his attempt to use in the teaching of ethics the "case method" of teaching law, for some time successfully employed in the Harvard Law School. The student collects and examines the actual decisions which authorities acting for society have delivered on moral questions. Those who have criticized this plan, for example, H. A. Overstreet and T. R. Powell (in *Jour. of Philos.*, Aug. 14 and 28), have acknowledged its suggestiveness and the ethical importance of the material contained in legal literature.

The only important book of the year in this field is G. E. Moore's *Ethics* (Holt). Although published in the Home University Library, this book is by no means a mere popular hand-book on the subject. It is a restatement in a more straightforward and effective way of the author's peculiar views, already set forth in his *Principia Ethica*. It is an extremely original defense of the thesis that rightness consists in the causing of an objective, intrinsic good, that is indefinable and independent of pleasure or desire. The defect of the book lies in the author's tendency tediously to elaborate points which, while original and more often than not true, are nevertheless obvious and sometimes even trivial.

Philosophy of Religion.—A number of important books in this field by both American and English writers have appeared. George Santayana's *Winds of Doctrine* contains an important discussion of "Modernism and Christianity," in which the author takes the position that Modernism is not Christianity; in other words, that Christianity consists essentially in the orthodox faith. The author writes not as an advocate of orthodoxy, but rather as a critic of liberalism on the ground that it is an attempt to retain the name without the substance of historical Christianity. Opposed to this view is a volume entitled *Foundations: A Statement of Christian Belief in Terms of Modern Thought*, by seven Oxford men. The book is an attempt to elaborate an interpretation of Christianity that shall be in agreement with the more advanced theories of theological, philosophical and Biblical criticism, and yet be inspired with a positive religious spirit.

Three important books have appeared that deal with religious problems from the standpoint and by the method of philosophy. All three writers are idealistic in their fundamental positions. Watson's *Interpretation of Religious Experience* is interesting for its criticism of recent tendencies, such as realism. Bosanquet's *Value and Destiny of the Individual*, comprising the Gifford Lectures given at Edinburgh in 1912, is the sequel to the author's volume on *Individuality and Value*. The fundamental principles advanced in the earlier book are here applied to the genesis and relations of the individual. Especially notable are the discussion of the relation of mind and body, and the author's distinction between God and the Absolute, the former belonging to the world of appearance, the latter being the ultimate reality. Royce's *Problem of Christianity* contains the lectures delivered before the Lowell Institute in Boston, and afterwards at Manchester College, Oxford, on the Hibbert Foundation. These lectures are an application of the author's "philosophy of loyalty" to the doctrines of Christianity. The religious experience is interpreted as essentially social. The central teachings of Christianity are, according to the author, the universal spiritual brotherhood and the salvation of the otherwise lost individual through loyalty to this brotherhood.

XXX. THE MEDICAL SCIENCES

ANATOMY

G. Carl Huber

General Survey of Progress.—The year 1913 has been one of general progress in anatomy. The anatomical laboratories of America are in a stage of transition. In the great majority of the better medical schools they are now manned by teachers giving full time to teaching and research. The transition from "part-time" teachers to "full-time" trained teachers has been so rapid during the year that it has been difficult adequately to meet the needs. The list of publications during 1913 is long and diversified; in the following pages a selection of the more important publications is reviewed, indicative of the scope and character of the research activities of American anatomic laboratories.

Of general works Charles S. Minot's two books, *Die Methode der Wissenschaft und andere Reden* and *Moderne Probleme der Biologie* (Fischer, Jena, 1913), contain addresses delivered in America and as exchange professor in the Universities of Berlin and Jena. Dr. Churchill Carmalt, before his untimely death in January, 1905, had made an extensive study of the morphology of the salivary glands. In *Contributions to the Anatomy and Development of the Salivary Glands of Mammalia* (Special Studies conducted under the Crocker Research Fund, Columbia University Press), G. S. Huntington and H. von W. Schulte have edited Carmalt's notes, which they have greatly extended by numerous personal observations, the whole forming a series of eight monographs, published in one comprehensive volume, dealing with the morphology and development of the mammalian salivary structures. This series of monographs marks a distinct advance in the general knowledge of the subject. A fourth edition of McMurrich's *The Development of the Human Body* (Blakiston, 1913) has appeared, in part rewritten, thoroughly revised and enlarged.

Growth Phenomena.—As a result of numerous weighings, made on material taken from albino rats of known ages, Hatai concludes that from a standpoint of curve fitting the internal organs are no more variable than the other parts of the body if certain modifying factors are taken into consideration. C. M. Jackson gives in tabular form the results of numerous weighings made of material taken from albino rats of stated ages, to determine the postnatal growth and variability of the body and various organs; a comprehensive discussion adds value to this contribution. Investigators of growth phenomena as a rule record length and weight obtained at certain intervals, an average being made of a large number of data thus collected. The increase of the dry substance of the brain has been fully studied by Donaldson and his associates. Lowrey has studied the increase of the dry substance in tissues and organs of the albino rat other than the nervous system. The dry substance of the albino rat increases from about 11.7 per cent. at birth to 29.9 per cent. at 20 days, to about 33 per cent. at 10 weeks, and decreases to about 31.5 per cent. in the one-year rat. M. M. Miller has contributed a study on the prenatal growth of the spinal cord in the human embryo. Observations on the growth of spayed albino rats lead Stotsenberg to conclude that the

ovaries tend to retard growth in length and tend to retard fat formation, since spayed rats were from three to four per cent. larger than unspayed rats of the same age. The increase in weight is accounted for by a greater fat deposition. In semi-spayed albino rats the presence of the remaining ovary is sufficient to control normal growth.

Cytology. — Wiemann (*Am. Jour. Anat.*, XIV) has endeavored to determine the number of chromosomes in man by counting them in somatic mitotic figures. The material used was a well fixed human embryo of 8 mm. These studies show that in the human embryo the somatic mitoses display more than 24 chromosomes, the number usually given by recent observers. Wiemann's count varied from 33 to 38, 34 being the number most frequently met with; Winiwarter, however, in a recent publication (*Arch. d. Biol.*, XXVII), has given the number as 47 in the male and 48 in the female. On the basis of his counts Wiemann inclines to the belief that the somatic and spermatozonial numbers of chromosomes may perhaps be not actually identical, as has been supposed. Notwithstanding the number of investigators who have studied spermiogenesis in mammalia, many of the details of this process are not fully agreed upon. J. R. Oliver (*ibid.*) has enriched the literature by a careful study of the spermiogenesis of the fur seal. Certain disputed points, as, for instance, the origin of the caudal tube from a series of filaments, are satisfactorily answered. The behavior of the centrioles was followed. (See also XXVII, *Zoölogy.*)

Blood and Blood- and Lymph-Vascular Systems. — J. A. Badertscher (*ibid.*, XV) presents evidence which shows that the granules of the eosinophilous cells are exogenous in their nature, the products of degenerating erythrocytes and muscular tissue. A. J. Brown (*Anat. Rec.*, VII) has presented a careful study of the development of the pulmonary veins and has shown that they have their anlage in an especially developed part of an indifferent splanchnic plexus, communicating with the systemic veins by means of two well-defined connections. The conclusions reached are based on careful reconstructions. The reptilian heart has been used repeatedly in experimental work bearing on the physiology of the heart. A careful study of its structure and the distribution of nervous elements, therefore, was desirable. This is supplied by the investigations of H. Laurens (*ibid.*). A. M. Miller (*Am. Jour. Anat.*, XV), as a result of studies on the development of the thoracic duct of chick, allies himself with the advocates of the view that the thoracic duct originates independently of the veins and lymph sacs, having origin in mesenchymal spaces. Pappenheimer (*ibid.*, XIV) has studied the thymus of frogs and rats by histologic methods and by growth *in vitro*. It could not be definitely decided that an internal secretion exists. In cultures *in vitro* the recticular cells presented characteristics which confirm their epithelial rather than mesenchymal origin.

Internal Organs.—Addison and How (*ibid.*, XV) have studied the changes affected by lung tissue immediately after birth. The lung tissue in late fetal life constitutes 70 to 80 per cent. of the entire area in a section; 40 to 60 per cent. at the end of one hour of breathing and 20 to 30 per cent. two days after birth. It was determined that in the prenatal lung the future air passages are filled with a fluid. Huber and Curtis (*Anat. Rec.*, VII), by use of especially devised methods of maceration, have reported that they were able to tease out completely the seminiferous tubules of certain mammals and to show that these tubules presented no blind ends, all forming arches or systems of arches connected with the rete testis. F. P. Johnson (*Am. Jour. Anat.*, XIV), in a series of papers dealing with the development of the intestinal mucosa of human embryos, contributes a study of the development of the mucosa of the large intestine. Numerous reconstructions were made. As development proceeds the epithelial tube presents longitudinal folds, these by segmentation are replaced by villi which reach their maximum development in embryos between 110 mm. and 140 mm., then gradually disappear. The glands develop by

epithelial budding. This same author (*ibid.*) in a further paper has shown that the villi and glands become shorter and broader in a distended intestine and may entirely disappear with extreme distension. It seems probable that in normal peristalsis the villi change their shape and thus bring about a more thorough mixing of the intestinal contents. Scammon (*ibid.*) has given a thorough and comprehensive account of the development of the liver and gall bladder of elasmobranchs, based on numerous reconstructions. Whitehead (*Anat. Rec.*, VII) has described a case of what appears as true anatomic hermaphroditism in a person with external genitals and secondary sex characters of a female, with ovary in the pelvis and two ectopic testes. The seminiferous tubules presented a rudimentary structure. The interstitial cells of the testes appeared quite normal. It is obvious that the case does not lend support to the view that the secondary male characteristics are dependent on an internal secretion of the interstitial cells. Lord (*ibid.*) has made a study of the temporo-mandibular articulation, and finds that the jaw is depressed in the ordinary opening of the mouth by the unassisted action of the external pterygoid muscles. This is quite contrary to the generally accepted view.

Neurology. — Bean (*ibid.*) suggests that the term "cranial nerves" is a misnomer, presenting the term "cephalic nerves," and has reclassified these nerves by omitting optic and olfactory nerves and vagus and spinal accessory nerves, since they are not true cephalic nerves. The remaining cephalic nerves are grouped so as to form 11 pairs, each with special designation. Black (*Jour. Comp. Neur.*, XXIII) has presented a detailed study of the central nervous system of a case of cyclops. The same author in a further study (*ibid.*) considers the cytotechtonic structure of the cortex of this brain. Greenman (*ibid.*) by careful countings and measurements has determined the number and size of regenerating peripheral m e d u l l a t e d nerve fibers after sectioning of the left peroneal nerve of albino rats of varying ages and has compared the results with similar observations on the control unoperated right peroneal nerves of the same animals. An increase of the number of nerve fibers in the regenerating nerves is noted and a decrease in the number and the size of the nerve fibers in the control nerves. R. M. Harvey (*Anat. Rec.*, VII) with a simple method of reconstruction of the bilateral basal ganglia of the human brain has demonstrated their asymmetry. C. H. Heuser (*Am. Jour. Anat.*, XV) has presented a study of the morphogenesis of the ventricles of the pig's brain and certain other mammals. Huber and Guild, J. B. Johnston and McCotter have recorded observations on the nervus terminalis in mammalia. Johnston (*Jour. Comp. Neur.*, XXIII) was the first to note the presence of this nerve in reptilian and mammalian embryos; McCotter (*ibid.*) determined its presence in adult dogs and cats by gross dissection; and Huber and Guild (*Anat. Rec.*, VII) by means of a silver technique were able to stain the nervus terminalis differentially in the rabbit, trace its full distribution and note the presence of numerous sympathetic neurones in its course. Huber and Guild (*ibid.*), in a study of the spinal ganglia made by use of the pyridin-silver technique, note the development of collaterals and protoplasmic branches, terminating in end discs, late in prenatal and early in postnatal life, and they therefore regard these structures not as an evidence of a collateral regeneration phenomena, but as an expression of normal cytomorphosis. J. B. Johnston (*Jour. Comp. Neur.*, XXIII) has further contributed an extensive monograph on the morphology of the septum, hippocampus, and palial commissures of the brain, giving an excellent account of the evolution of the telencephalon, beginning with the primitive brain and taking into consideration the factors and processes by which the mammalian brain has been determined. Kuntz (*ibid.*) finds that the cranial sympathetic ganglia bear the same genetic relation to the cerebrospinal system as do other parts of the sympathetic nervous system. He has further studied the ganglia and nerve terminations of the digestive tube by means of the intravitam methylene blue and silver

methods. Malone (*Anat. Rec.*, VII) has recognized a coarse granular structure consisting of relatively smooth granules of chromophilic substance in cells of somatic motor nerve chains with no transition stages between such and nerve cells in afferent chains, differing also in structure from nerve cells in visceral motor chains. It is possible, therefore, to determine the function of certain types of nerve cells by means of structural characteristics. This author has shown, for instance, that the lateral motor nuclei of the cranial nerves are to be classed as somatic motor nuclei. In a further study this author states that the three types of muscle are innervated by three distinct types of nerve cells. Thus by recognizing an intermediate type as innervating heart muscle, the nucleus cardiacus nervi vagi was determined as situated in the middle of the vagus sympathetic nucleus. C. W. Prentiss (*Am. Jour. Anat.*, XIV) has shown that the tectorial membrane of the inner ear is a delicate chambered reticular structure attached to the vestibular lip and the spiral organ, the auditory hairs projecting directly into the chambers of this membrane, so that the vibrations of this membrane are transmitted to them. Ranson (*ibid.*) has noted that in the spinal cord and medulla of the albino rat, stained after his pyridin-silver method, the cerebro-spinal fasciculus is differentially colored. A topographic description of this fasciculus is given, its structure discussed, and the presence of numerous non-medullated nerve fibers noted. The same author (*Jour. Comp. Neur.*, XXIII) by using the same technique on the spinal cord of the cat observed that the non-medullated fibers arising from the small cells of the spinal ganglia could be traced through the dorsal root to the tract of Lissauer, where they constitute the great majority of its non-medullated fibers. E. V. Smith (*Am. Jour. Anat.*, XIV) has presented observations made with the Cajal silver method on the sensory ganglia of birds. A detailed statement of the types of sensory neurones observed is given.

PHYSIOLOGY AND PHARMACOLOGY

S. J. Meltzer

The Stomach.—In a young man who, 16 years before, acquired a benign complete stenosis of the œsophagus, and who feeds himself through a permanent gastric fistula, Carlson found the opportunity to make some studies on the physiology of the stomach, reminding one of the celebrated studies of Beaumont made on the Canadian Alexis St. Martin some 90 years ago. For the present he has studied mainly the movements of the empty stomach and has reported his observations in five articles, published in the *American Journal of Physiology* (XXXI, 151, 175, 212, and 318; XXXII, 245). He found that the empty stomach (in a state of hunger) exhibits two types of rhythmical movements: one is relatively feeble but continuous, with a constant rate of contraction of 20 seconds' duration; the other falls into periods of relatively strong contractions that may end in tetanus. These movements are greatly diminished or absent altogether when health and vigor are impaired. In agreement with the theory of Cannon and Washburn (*A. Y. B.*, 1912, p. 703) Carlson found that, as a rule, the stronger contractions give rise to the sensation of hunger. This sensation is caused by the stimulation of afferent nerve fibers in the muscle layers. The contractions are inhibited reflexly from the oral cavity by chewing, by stimulating the taste organs (sweet, bitter, etc.) and by the swallowing act; they are also inhibited when water (cold or warm), coffee, tea, beer, etc., are introduced into the stomach directly; local anesthetics like orthoform, chloreton, phenol, etc., when used in therapeutic doses do not inhibit the contractions. During the gastric contraction there is an augmentation of the knee-jerk and the pulse rate, while the vasomotor tonus appears to be less stable.

Carbon Dioxide.—The assumption of Haldane, Henderson, and others that carbon dioxide acts essentially as a stimulating agent, has not been

supported by the investigations of Hooker and his co-workers (*ibid.*, XXXI, 47 and 64). The tonus and contractions of rings from blood-vessels of cold-blooded animals, as well as of mammals, are abolished by carbon dioxide, and restored, and even improved, when exposed to the action of oxygen. Hearts of terrapins and of cats, when perfused directly with Ringer solutions containing CO_2, cause a relaxation of the ventricle and auricle and a diminution of the heart output. The contrary statement of Starling and Jerusalem has its origin in the fact that in their method the vessels of the lung become relaxed and thus send in a greater amount of blood into the left heart, which exhibits a greater diastolic effect due to the relaxing effect of the CO_2. E. L. Porter (*ibid.*, XXXI, 223) was unable to find evidence of increased irritability of the cord under asphyxial conditions (increase in CO_2).

It has been questioned if irritability of nerve fibers depends upon chemical processes and whether nuclei-free fibers can be the seat of metabolic processes. By means of very sensitive apparatus, Shiro Tashiro (*ibid.*, XXXII, 107 and 137) demonstrated that the resting nerve gives off a certain quantity of CO_2; that this quantity becomes less and less with the loss of the irritability of the nerve; that anesthetized nerves do not give off any CO_2, and that during stimulation of a nerve, the vital response of which can be recognized only by the appearance of an electric variation, the quantity of CO_2 given off is 2.5 times as large as that of the resting nerve.

Circulation.—In studying the wave of negativity which sweeps over the various sections of the heart during its contraction, Meek and Eyster (*ibid.*, XXXI, 31) obtained results which seem to support the older view that contraction in the tortoise's heart is a wave that sweeps over the sinus, auricle and ventricle, terminating at the ventricular apex. According to G. Canby Robinson (*Jour. Exper. Medicine*, XVII, 429) faradization of the right auricle of the dog causes an auricular tachycardia, coexisting with true auricular fibrillation. Stimulation of the right vagus nerve inhibits the auricular tachycardia, while the fibrillation is uninfluenced. Stimulation of the left vagus nerve has little or no apparent inhibitory effect on the tachycardia, but has possibly an inhibiting effect on the fibrillation. Gesell (*Am. Jour. Physiol.*, XXXII, 70) finds that the amount of urine as well as the amount of chlorides, urea, and total nitrogen eliminated in the urine, varies directly with the magniture of the pulse pressure; the suddenness of the pressure changes, vascular shock, may be, however, an important factor in the secretion of urine. In a great majority of experiments on dogs Auer and Meltzer (*Proc. Am. Physiol. Soc.*, XX; *Am. Jour. Physiol.*, XXXI) found that stimulation of the central end of the splanchnic nerve causes an unmistakable drop in blood pressure. The abdominal viscera, then, like the viscera of the thoracic cavity, possess a reflex depressor nerve.

In studying the action of certain drugs on the electrocardiogram, Eyster and Meek (*Jour. Pharmacol. and Exper. Ther.*, IV, 343) found that decrease of the extent of ventricular contraction, by absence of calcium from the perfusion fluid of the isolated heart, does not affect the R-complex of the electrocardiogram to any noteworthy degree. The T-wave is markedly affected. Increase in the extent of ventricular contraction by epinephrin likewise does not, in a noteworthy degree, affect the R-wave in any case. The T-wave may or may not be affected.

Against the conclusions drawn by Starling and Knowlton from their experiments on perfused hearts that diabetic hearts are capable of consuming a great deal less sugar than normal hearts, Macleod and Pearce (*Am. Jour. Physiol.*, XXXII, 184) report experiments in which there was no difference between normal and the diabetic dogs in the amount of dextrose which gradually disappears in the blood after evisceration. In a study of blood glycolysis *in vitro* Macleod (*Jour. Biol. Chem.*, XV, 497) found that, on average, about one-half of the original amount of dextrose disappears in two and one-half hours from blood kept outside of the body at 40 deg. C.; that glycolysis is a func-

tion of the corpuscles and is absent in the serum, and that even under the most favorable circumstances the quantity of dextrose which the blood can destroy is only a small fraction of that which disappears in the same time in the intact animal.

Diverse Physiological Subjects.—According to Weed, Cushing, and Jacobson (*Proc. Am. Physiol. Soc.*, XIII; *Am. Jour. Physiol.*, XXXI) the hypophysis, especially its posterior lobe, and the superior cervical ganglion have a special relation to glycogeneolysis and glycosuria. Piqûere of the hypophysis, or its stimulation, stimulation of the superior cervical ganglion, or the mere manipulation necessary for its exposure, cause glycosuria; these stimulations, however, have no effect when the posterior lobe of the hypophysis has previously been removed by operation.

Kronecker and Meltzer, Cannon and Lieb, and Joseph and Meltzer have previously described relations existing between œsophagus, cardia, stomach and duodenum, exemplifying *reciprocal innervation* (Sherrington) or *contrary innervation* (Meltzer), that is, that certain sections of the gastro-intestinal canal relax, while the section above is contracting. Lyman (*Am. Jour. Physiol.*, XXXII, 61) observed that similar relations exist between the lower part of the ilium and the proximal part of the colon: the movements of the latter cease when peristalsis appears in the lower part of the ilium.

Carrel (*Jour. Exper. Medicine*, XVIII, 155) introduced an experimental preparation under the term of "visceral organism." The entire contents of the thorax and abdomen are carefully removed and put in a thermostat at 37 deg. C.; the respiration is kept up by means of the Meltzer-Auer insufflation method. The living activities of this visceral organism can be kept going for 12 hours and longer.

Pharmacology.—It is generally assumed that adrenalin can produce only a rise of blood-pressure. Some ten years ago Meltzer reported the occurrence of a vasodilatation after a subcutaneous injection of very small doses of adrenalin. Cannon and Lyman (*Am. Jour. Physiol.*, XXXI, 376) report now that stimulation of an adrenal gland, or splanchnic stimulation after excluding splanchnic vessels, result in the cat in a fall of blood-pressure due to vasodilatation, and that injection of small doses of adrenalin at a uniform slow rate into a cat causes a similar fall of blood-pressure. Studying the nature of the favorable action of stimulation of the splanchnic nerves upon muscular fatigue, Cannon and Nice (*ibid.*, XXXII, 44) come to the conclusion that the betterment of action of the fatigued muscle is mainly due to the increased blood flow in the muscle, resulting from splanchnic stimulation, and that the previously reported effects of adrenalin on the skeletal muscle should be attributed to the change in circulation and not to a specific action of adrenalin. Folin and Denis described a preparation of a phosphotungstic acid solution which proved extraordinarily sensitive as a reagent for uric acid. Folin, Cannon, and Denis (*Jour. Biol. Chem.*, XIII, 477) found it to be also a very sensitive reagent to epinephrin (adrenin). Solutions containing one part of epinephrin in 3,000,000 parts of water give an unmistakable reaction with this reagent, which is as much as ten times more sensitive than any of the hitherto known color reactions for epinephrin. While blood *in vitro* does not destroy epinephrin, yet this substance is rapidly destroyed when brought into the circulation. According to Tatum (*Jour. Pharmacol. and Exper. Ther.*, IV, 151) epinephrin, as well as the pressor substances that are found in serum, rapidly disappear when oxygenated in the presence of the artery wall.—Auer and Meltzer have shown that subcutaneous injections of adrenalin exert only a moderate effect upon blood-pressure, while intramuscular injections raise the blood-pressure nearly as well as intravenous injections of adrenalin. Regarding the glycosuric and diuretic effects of adrenalin, Kleiner and Meltzer (*Jour. Exper. Med.*, XVIII, 190) found that reverse conditions prevail; they have shown that subcutaneous injections of adrenalin are more favorable to the production of glycosuria and to the increase of diuresis than intramuscular injections.

PATHOLOGY AND BACTERIOLOGY

MARTHA WOLLSTEIN

General Survey of Progress.—Progress in the field of pathology and bacteriology has been steady throughout the year, and, in addition, two record-making contributions to medical science have been made. One of these is the discovery of the microörganism causing infantile paralysis, the other the finding of the spirochete of syphilis in the brains of persons afflicted with paresis. Both of these discoveries open up wide fields for study, especially along the lines of prophylactic and curative treatment.

The method of cultivating tissue cells *in vitro* has been applied to new problems in the pathology of new growths and to the bacteriology of so important a subject as vaccinia, with results the interest of which lies as much in the new questions they suggest as in those which their application has answered.

Epidemic Poliomyelitis.—Our knowledge of infantile paralysis has been very materially increased by the discovery of its causative microörganism by Flexner and Noguchi (*Jour. Exper. Medicine*, XVIII, 461). As stated in last year's review on the subject (*A. Y. B.*, 1912, p. 706), epidemic poliomyelitis has been known for several years to be due to a virus small enough to pass through an unglazed porcelain filter, and therefore certainly smaller than the ordinary bacteria, possibly even ultra-microscopic in size. Now that the application of an intricate and difficult technique to the problem of solving the nature of that filterable virus has resulted successfully, and the microörganism can be seen, grown and handled as a definite entity, it becomes manifest that the final problem of procuring both a preventative and a curative remedy for the disease has been given a new impetus with greater hope of success.

The organism is a minute globoid body, three or four times smaller than the ordinary streptococcus (coccus arranged in chains) and averaging 0.2 micron in diameter, the limit of visibility being 0.15 to 0.3 micron. These small bodies, which have not yet been classified, are arranged in pairs, in short chains or in small masses; they possess no motility and grow slowly. They will not grow in the presence of free oxygen, which is absent from the nervous tissues and the organs in the body in which the virus has thus far been demonstrated. These bodies were cultivated from the brain substance of human beings who had died of poliomyelitis, as well as from the nervous tissues of monkeys dead of the experimentally produced disease.

Pure cultures of the human and of the monkey strains inoculated into rhesus monkeys produced the clinical picture of experimental poliomyelitis, confirmed at autopsy by the gross and microscopic lesions in the spinal cord and medulla oblongata. Finally, cultures made at autopsy recovered the globoid bodies from the nervous tissues of the inoculated monkeys. The chain of facts proving the etiological relationship of these globoid bodies to epidemic poliomyelitis is thus complete, in that they are present in the diseased organs of the patient, that the inoculation of their pure cultures is followed by the experimental disease in monkeys, and that they can be recovered in pure culture from the lesions produced in these animals.

The importance of the demonstration of this microörganism in solving the problem of the prevention and cure of epidemic poliomyelitis is apparent. Instead of working with an invisible filterable virus, experiments can now be carried on with an organism of definitely known characteristics, and the hope of producing definite means of preventive immunization and early curative treatment is much brighter than it was a year ago.

A second important fact has been experimentally proven during the year, and that is the existence of passive human carriers of the poliomyelitis virus. That such carriers exist has been suspected, but now it has been definitely shown that the healthy parents of a child ill with an attack of acute poliomyelitis harbored the virus in the naso-pharynx. We have,

then, an additional factor in the spreading of the disease, the healthy attendants of the patient as well as the patient himself. The necessity for precautionary measures to protect other healthy persons from contact with such passive carriers is a problem in the prophylaxis of this disease. But the observation also proves the correctness of the view that the nasopharynx is a very common point of entrance for the poliomyelitis virus into the human body. (Flexner, Clark, and Fraser, *Jour. Am. Med. Assoc.*, LX, 201.)

Syphilis.—The question of the relationship of general paralysis to syphilis has long been a disputed one, some observers insisting that without previous syphilitic infection there could be no paresis, while others held this to be an exaggerated view. The consensus of opinion has been, however, that by far the greater number of cases of general paralysis follow a distinct syphilitic infection after an interval of from five to 20 years.

One of the most important medical advances of the year has answered this question in the affirmative, by demonstrating the presence of *Treponema pallidum* in the brain of persons dead of paresis. The *Treponema pallidum* or *Spirochæta pallida* was first described by Schaudinn in 1905, and is now generally accepted as the causative factor in syphilis. The organism is corkscrew in shape, has motility of its own, and is found in the initial lesion and in the internal organs of patients afflicted with syphilis. Noguchi and Moore (*Jour. Exper. Medicine*, XVII, 232) found it in the sections of 12 out of 70 paretic brains examined, the cases being undoubted general paralysis with classical physical signs and post-mortem findings in the brain. Most of the cases were of a shorter duration than the average, and so the observers thought it possible that the spirochetes are more apt to be found in those cases which run a fairly rapid course. That such a view is not correct was demonstrated in Paris by Marie, Levaditi, and Bankowski (*Comptes rendus des Séances de la Soc. de Biol.*, LXXIV, 1009), who were able to find the spirochetes in the brain of a patient afflicted with paresis for nearly seven years. It has also been demonstrated that the spirochetes in the brain of paretic patients are present during life, and that the organisms are viable and capable of producing lesions in inoculated animals. The importance of early and effectual treatment of every syphilitic infection in the hope of obviating the development of paresis later is emphasized anew by this most illuminating discovery.

Rabies.—It has been known for over 30 years that hydrophobia is an infectious disease. The fact that the infectious element is present in the nervous system of the animal dying of rabies was utilized by Pasteur in originating the specific preventive treatment which, since its introduction in 1885, has been of the greatest value in saving human life. There still remained two important problems for solution, the nature of the specific microörganism causing the disease and a specific curative treatment for the disease itself; for, though rabies may be prevented, it has hitherto been incurable after its symptoms have manifested themselves. During 1913 work on both these problems has been done in this country, and while the results are too few to be absolutely conclusive, they indicate distinct progress with ultimate hope of success.

As regards the specific microörganism, it must be remembered that ten years ago Negri demonstrated small structured bodies as present in the nerve cells of the brain and spinal cord in cases of rabies. These cell inclusions were shown to be specific for the disease, and a study of the Negri bodies by an American investigator (Williams), several years ago, brought out much evidence in favor of a specific protozoal cycle of development for these bodies. Recently the results of cultivation experiments by Williams (*Jour. Am. Med Assoc.*, XLI, 1509) and by Moon (*Jour. Infec. Diseases*, XIII, 232) seem to show that the growth of the organism has been obtained in artificial media, as proven by successful animal inoculations with the fifth and sixth generation of such cultures. Noguchi (*Jour. Exper. Medicine*, XVIII, 314) also announced positive results in cultivating the rabies virus with a different method, and expressed the opinion that the nucleat-

ed bodies he has succeeded in cultivating exhibit the appearance of protozoa rather than of bacteria. While all these studies have been made with the virus as found in the nervous system, other very interesting investigations have been made with the virus in a pure state from the salivary glands of infected dogs. This gland virus does not differ from that found in the nervous system in its ability to produce hydrophobia in inoculated animals. Its microscopic study shows the presence of small granules, and the possible relation of these granules to the virus and to Negri bodies is an interesting question. The problem of rabies etiology, then, seems to have reached the stage when a definite solution is probable within a very short time.

The second problem, that of finding a curative treatment for the active disease, has been furthered by successful experiments with quinine given by the stomach to infected dogs (Moon, *Jour. Infec. Diseases*, XIII, 165). One human case has been so treated with success.

In the meantime, the prophylactic treatment of hydrophobia, based upon the fact that the disease has so prolonged an incubation stage that there is ample time between infection (bite of a rabid animal) and the development of the first symptoms to produce an artificial immunity in the infected person, has also been the subject of investigation. The object of such studies is the possible improvement in the method of producing material for preventive inoculation and the reduction in the time required for such treatment. Both these objects have been accomplished by Harris' method of freezing and drying the material for prophylactic injections. An ordinary case of dog bite can now be successfully immunized in six days instead of three weeks, and even cases of extensive wounds of the face can be immunized within 15 days. (Harris, *Jour. Infec. Diseases*, XIII, 155.)

Measles.—A most illuminating contribution to our knowledge of the rash of measles has been made by von Pirquet (*Zeitschr. für Kinderhk.*, VI, 1), who studied the skin eruption in a series of cases from its first appearance to its height and then throughout its recession. He found that the rash spreads by increase in the size of the individual spots as well as by the eruption of new ones, three days usually elasping between the first sign of the papule and the disappearance of its hyperæmia. The eruption is localized along the blood vessels of the skin and not along the sensory nerves, and it appears first and is most intense over areas which are nearest the heart and larger vessels and which have the most abundant blood supply.

The rash is therefore explained by an hypothesis which assumes that there is a reaction of the measles virus with its antibodies, such a reaction taking place within the skin capillaries. The nature of the reaction may possibly be one of agglutination, the microörganisms causing the disease becoming held together in groups within the capillaries of those portions of the skin which happen to be saturated with substances capable of clumping the organisms. Naturally the most vascular areas will have the largest amount of antibodies; and since by means of this agglutination the virus is gradually removed from the blood, only few organisms are left to be taken up by the poorly vascularized areas. Hence the distribution of the rash is explained. This hypothesis can be proven only when the measles organism shall have been isolated in pure culture, but for the present it offers a rational explanation of the phenomena of the eruption (*Zeits. für Kinderhk.*, VI, 1913, 1). It has long been known that a large proportion of cases of measles are accompanied or followed by other diseases, especially pneumonia and tuberculosis. Studies of the blood during an attack of measles have shown that the white blood corpuscles are diminished in number, and that their ability to engulf and destroy pathogenic bacteria is distinctly lessened. It is quite possible that this diminished phagocytic power of the leucocytes present throughout the course of an attack of measles may be in part responsible for the frequency of the complications and sequelæ. (Tunnicliff Ruth, *Jour. Infec. Diseases*, XI, 474.)

Pertussis.—In 1906 Bordet and Gengou described a small bacillus

found in the sputum of children ill with whooping cough, and they brought forward strong presumptive evidence of the etiological relationship of this bacillus to the disease. While other observers have corroborated all the statements of the French investigators, absolute experimental proof that their bacillus is the specific cause of pertussis had never been given until now, when Mallory claims to have done so (*Jour. Med. Research*, XXVII, 115, 391).

The trachea and bronchi are lined with fringed or ciliated cells, the cilia, by their constant motion, serving to rid the surface of these tubes of extraneous particles. Mallory found that in the trachea of children who had died during an attack of whooping cough, there were large numbers of minute bacilli lying between the cilia of the lining cells, apparently numerous enough to cause mechanical interference with the ciliary motion. He assumes that as a consequence of this incapacity of the cilia, there is a constant irritation and cough of a spasmodic type, expressing an effort to get rid of the obstructing bacilli. Believing this lesion to be the specific one for pertussis, Mallory tried to prove it experimentally. He succeeded in producing similar lesions in rabbits and puppies with pure cultures of the Bordet bacillus and also with sputum from a case of whooping cough. He was further able to recover the bacillus from the inoculated animals and thus link the organism and the lesion in definite etiological relationship. Treatment of pertussis with vaccines of both live and dead bacilli has given fairly promising results, but observations are not numerous enough as yet to warrant a definite opinion.

Pneumonia.—The association of the pneumococcus with lobar pneumonia has been known for many years, but experimental proof of its etiological relationship with the disease was only furnished two years ago, when lobar pneumonia was produced in dogs by cultures of pneumococcus introduced directly into the bronchi by means of the insufflation method invented by Meltzer and Auer (see *Medicine, infra*). Since then studies made in this way have shown that there is a definite relationship between the virulence of the pneumococcus introduced into the lung and the severity of the inflammation which results.

An increase in the number of white blood cells is a normal accompaniment of lobar pneumonia. That it is an important factor in determining the outcome of the disease has recently been shown by experiments made by the insufflation method, in which treatment with a substance which destroyed leucocytes (like benzol) caused a diminished resistance to pneumococcus infection, while such resistance was increased in animals treated with a substance causing hyperleukocytosis (Winternitz and Hischfelder, *Jour. Exper. Medicine*, XVII, 657).

A still more important addition to our knowledge of pneumonia pathology was furnished by recent studies with the pneumococcus, in the course of which it developed that the blood in which it grew showed a reduced capacity to combine with oxygen, owing to a change in its hemoglobin (coloring matter) molecule. Analogous results were found in the blood of animals inoculated with pneumococci, and also in the blood of patients with pneumonia. It appears that in uncomplicated cases of this disease the oxygen content of the blood is within normal limits, but occasionally there may be less oxygen and an increased amount of carbon dioxide, apparently due to interference with the respiratory exchange of gases. In the terminal stage of fatal cases there is often a progressive diminution in the amount of oxygen in the blood and a progressive decrease in its oxygen-combining power. This occurs usually in patients in which very large numbers of pneumococci are present in the circulation. The change of the hemoglobin molecule from oxyhemoglobin to methemoglobin, as a result of which it no longer takes up and gives off oxygen readily, is probably a factor in the immediate cause of death in many cases of pneumonia. (Peabody, *Jour. Exper. Medicine*, XVIII, 1, 7.)

Growth of Tissue in Vitro.—Continuing the work along these lines, reviewed in the last issue of the YEAR BOOK (p. 699), Alexis Carrel and his assistants have obtained some in-

teresting results in growing the cells of connective tissue. Thus they were able to show that these cells grew from three to 40 times more rapidly when extracts of the tissues were added to the culture medium of normal or diluted plasma. Extracts of embryonal tissues were more active than those of adult animals. The power of the tissue extracts was found to be specific in the sense that it is confined to the tissues of another animal of the same species; that is, the extract of chicken spleen had an accelerating effect on the growth of connective tissue of a fragment of heart from a chick embryo, while the activating influence of extracts of dog and rabbit spleen on chick tissue was very slight. Diluting, heating, and filtering the extracts all greatly diminished or even suppressed the activating power of the tissue extracts on the connective tissue cells. That this work may have a practical application in the cicatrization of wounds is possible. For the present it is useful in providing a better medium for the continuation of experiments in tissue growths. (Carrel, *Jour. Exper. Medicine,* XVII, 14, 287.)

The growth of axis cylinders, the central thread and most important portion of the nerve fibers, has been studied, and their growth from the cerebellum of young cats and guinea-pigs has been observed for the first time (Ingebrigtsen, *Jour. Exper. Medicine,* XVII, 182, 412). While the tissues of mammalian embryos and adult animals grew actively outside the body, it has thus far been very difficult to cultivate human tissues.

The method of growing cells *in vitro* is a very useful adjunct to the ways of studying the cells of malignant neoplasms, and comparative studies of the growth of cells from transplantable connective-tissue tumors (sarcoma) with those of normal connective-tissue cells have been made. The differences noted were to the effect that sarcoma cells grew more actively in the primary cultures than did normal connective-tissue cells, but that in secondary cultures the tumor cells were far less active, and it was difficult to propagate them in subcultures for any length of time. That this is due in part to the low resistance to injuries of all kinds on the part of tumor cells seems to be true.

The method of tissue cultivation is also well adapted for the study of normal and pathological cell division, and it was found that while atypical mitoses occurred in cultures of sarcoma cells, they were not present in the normal connective tissue cells. Amitotic division was not observed in either normal or tumor tissue. (Lambert, *Jour. Exper. Medicine,* XVII, 499).

A point bearing on the question of tumor immunity has been brought out by some experiments made on embryo and adult chicks with a transplantable neoplasm (sarcoma) of the rat. It appeared that a rapidly growing new growth developed at the site of inoculation of the rat tumor in the embryo chick and that such growths could be kept going for six weeks and perhaps indefinitely, while in the adult chicken no growth took place, the cells of the tumor being quickly destroyed. Presumably the survival of the foreign cells in the embryo chick is due to the absence of a defensive mechanism present in the adult chicken, which is capable of quickly destroying the foreign cells. (Murphy, *Jour. of Exper. Medicine,* XVII, 482.)

While no one fact of great practical importance has come to light during the past year in the study of the cancer problem, several interesting results like the above have been obtained, and when they are all fitted into place steady progress must be recorded.

Vaccinia. — The method of tissue growth *in vitro* has further been adopted to bacteriology for the study of vaccinia, with the result that experiments have shown that the vaccine virus has the power to multiply in rabbit or guinea-pig blood plasma, as demonstrated by inoculation on the shaven skin of rabbits and compared with similar inoculations with virus not incubated in plasma. No specific vaccine bodies were demonstrable in the preparations. Nevertheless the fact that the vaccine virus is capable of undergoing growth *in vitro* is a very definite contribution to our knowledge of vaccinia, and must shortly lead to larger results. (Steinhardt, Israeli, and Lambert, *Jour. of Infec. Diseases,* XIII, 294.)

MEDICINE

ALEXANDER LAMBERT and HARLOW BROOKS

General Survey of Progress.—No revolutionary studies have marked the year's work in medicine, but it has nevertheless been characterized by steady progress of research in all branches. In America particularly a very widespread interest in scientific research has been manifested by the entire profession. Good investigations are no longer limited to a few institutions in the large cities, but excellent studies have appeared from many small clinics and laboratories and even from isolated individual clinitians working entirely independently.

As an indication of the broader lines along which modern medical progress is extending, it is most encouraging to note the enthusiasm with which the theories of Ashoff, the brilliant successor of Zeigler at the University of Freiburg, are being accepted by the students of internal medicine. This investigator has returned to the methods of the old anatomical school of pathologists fathered by Virchow, von Recklinghausen and Welch and has chiefly interested himself in the mechanical theories of the production of disease. In a recent series of brilliant lectures delivered in New York, Ashoff has advanced new, suggestive, and helpful theories along these lines as applied to such familiar but still puzzling conditions as the formation of gall stone and the production of gastric ulcer. He has also thrown much new light on the extremely important process of thrombosis.

Experimental Pneumonia.—Although it is commonly conceded that lobar pneumonia is a general infection and though in corroboration of this fact the pneumococcus may be secured from the circulating blood, the clinitian has been far from content to assume that the process starts as a general infection, although admitting that it ultimately becomes such during the course of the disease. The period of onset is marked in nearly all instances not by the picture and symptomology of a generalized infection, but by that of a local disease of such characteristic type that the practitioner has never been able to divest himself of the idea that the process originates locally and that hope for the prevention or cure of the disease must in some way take cognizance of this apparent clinical fact.

It has remained for an experimental physiologist, himself also an able clinitian, finally to demonstrate the relationship between the pneumococcus, lobar pneumonia, and the natural mode of infection. Meltzer and Lamar (*Jour. Exper. Medicine*, XV, 133) have at last reproduced true lobar pneumonia in dogs, not selected or sensitized in any artificial manner, by introducing pneumococci of exalted virulence into the lungs by insufflation, closely simulating the manner by which the infection is probably induced in man. Control animals were all negative. Apparently in accordance with the quantity of culture so introduced the course of the disease was mild, severe, or fatal. The anatomical characteristics of true human pneumonia are very closely reproduced, as are also the clinical signs and course, except that a crisis does not take place; this, however, is to be expected since dogs do not present this clinical feature in natural canine pneumonia. Resolution follows as in the human disease and complete restitution of the pulmonary tissue may then occur. Meltzer and Lamar conclude that the question of experimental success does not depend so much upon the alteration of the power of resistance of the invaded individual as upon the opportunity afforded to the organism to intrench itself in the invaded pulmonary tissue. In this particular also the experimental data corroborate clinical observation.

This group of researches have also indicated the manner of infection, and point out clearly the lines for clinical research along which successful prophylaxis and possibly treatment may be sought. These studies apparently indicate the futility of most of the previous investigations directed to this end and perhaps account for their

universal failure thus far. The experiments have been corroborated and extended by Wollstein and others. Later Wollstein and Meltzer (*ibid.*, XVI, 126) have shown that bronchopneumonia also may be produced in a similar way. All these studies indicate that the manner of inoculation is quite as essential as the specific organism in the production of these lung infections.

Tuberculosis. — Although work in tuberculosis has steadily progressed, nothing of a very startling nature has developed along lines of treatment. While Koch's tuberculin is acknowledged to be a curative agent of very considerable value in properly selected cases, it must be conceded that it is capable of doing deadly harm when used improperly or at the wrong period. Attempts to modify or eliminate these effects justify the belief that eventually something will be found which will not only occasionally but generally favorably affect the course of tuberculosis disease without at any time jeopardizing the progress of cure. Some time ago Rosenbach attempted to ameliorate or modify the toxicity of tuberculin by the mixture with it of a mold (*Trichophyton holosericum album*) which has the power to alter or digest proteins and thus to modify the poisons generated by the tubercle bacillus. Kohler and Plaut (*Zeitschr. für Klin. Med.*, LXXIV, 1179) have treated 80 selected dispensary cases of pulmonary tuberculosis, managing one-half of the patients by the customary hygienic and dietetic measures, universally recognized as curative, and comparing these instances with an equal number of patients which received in addition the modified tuberculin. Marked improvement above that present in the test cases is reported in those who received the tuberculin.

Artificial Pneumothorax. — Among the more recent and valuable methods for the treatment of pulmonary tuberculosis is that of artificial pneumothorax. Very briefly this treatment consists in injecting sterile nitrogen gas into the space between the diseased lung and the chest wall. This results in compression of the lung and enforces rest on it. Cavities if present collapse and become filled in by a growth of scar tissue. The progress of the disease appears to be arrested in many cases.

The method is chiefly useful in long-standing and advanced cases and only in those in which the disease is chiefly localized on one side. It should be attempted only when there are no extensive adhesions between the two layers of the pleura, and unless performed by an expert may be a dangerous procedure, especially in improperly selected cases.

Although the treatment has been first widely studied in Italy, it probably originated in America, being first suggested by Murphy, or perhaps in a simpler form by Stowell of Ann Arbor some 20 or more years ago. A very complete and satisfactory study of the method in all its important aspects was presented by Kessel and Tashmann before the New York Academy of Medicine in October.

Ulcer of the Stomach.—Much interest has been attracted of late to the subject of gastric ulcer, and cases are very commonly recognized and reported. It would seem likely that the greater frequency of occurrence of this condition is to be traced mostly, if not entirely, to the increased accuracy in diagnosis which has naturally followed the closer study which the subject has received. The frequency with which cancer follows this disorder has long been remarked by practitioners, and this fact has received abundant apparent corroboration from such analytic studies as those of Wilson from the Mayo clinic, although on the other hand this relationship is disproven on pathological grounds by so astute and honest an observer as Aschoff. The importance of early surgical treatment has been chiefly emphasized in recent medical literature, even by many gastro-enterologists and internists. It has been quite generally asserted that the function of the internist has been to diagnose the condition, sharing the treatment in appropriate cases with the surgeon. In this connection it is therefore most instructive to study the analysis of 1,000 cases investigated by Freidewald of Baltimore (*Am. Jour. Med. Sci.*, CXLIV, 157), in which he shows that whereas 71 per cent. of cases

operated upon are cured, 72 per cent. of those treated by the Leube method (dietetic and medicinal) and 66 per cent. of those managed according to the régime of Lenhartz were also cured, thus apparently indicating that medical methods are as yet as successful as surgical ones. It should be remembered, however, that it is highly probable that a considerable proportion of those cases eventually treated surgically had been first submitted unsuccessfully to the medical test. For the guidance of the lay public it is well to understand that surgical intervention is now a well established and thoroughly justifiable treatment in cases of this nature, and that doubtless in some instances medical treatment is unjustifiable inasmuch as it involves certain delay and possible failure. (See also *Surgery, infra.*)

Ulcer of the Duodenum.—Very closely allied to ulcer of the stomach is a similar disease occurring in the duodenum, that portion of the small intestine joining the stomach and small intestine proper. As might be quite naturally inferred, the two disease conditions are probably produced by precisely similar causes, but the symptoms, while somewhat alike, differ in certain essentials which make diagnosis in the case of the intestinal disease more difficult and less certain than in the ulcerations affecting the stomach. In this condition it would appear that early surgical treatment is even more necessary than in ulcer of the stomach, although it is quite definite that many cases recover under medical treatment and at least a certain percentage without any treatment whatever. The literature of the subject during the year has been voluminous and has been chiefly concerned with diagnostic methods and the relative desirability of medical or surgical treatment.

Typhoid Fever.—As is also the case with many other infectious diseases, the frequency of occurrence and the virulence of type of typhoid fever vary greatly from year to year. The year 1913 has been characterized by a country-wide diminution in the number of cases of typhoid and by an apparently lessened mortality from the disease. Although we must admit that this may be but another illustration of the natural variations in the disease, it would seem that this bettered condition of affairs has largely resulted from improved understanding and methods of control, and particularly to improved water supplies (see also *Public Health and Hygiene, infra*).

It has been recognized for some time that certain individuals, once having suffered from typhoid fever, may, although themselves well, still harbor in their intestines active and virulent typhoid organisms which may thus become disseminated among those with whom they come in contact. Infection from these typhoid carriers has been well established in numerous cases and the legal as well as the hygienic problem has become one demanding settlement. It is a matter of certainty that in at least most of these instances the infection is harbored in the gall bladder and tracts of the infected person. Thus far medicinal methods have not been sufficient quickly to dislodge the typhoid organism and a person so infected remains a menace as active to the public as a case of clinical typhoid fever. Leeming (*Jour. Am. Med. Assoc.*, LX, 1293) proposes to treat these instances, as he has successfully done in two cases, by surgical removal of the gall bladder and the entire cystic duct. He recommends that the surgical removal be followed by the vigorous administration of anti-typhoid vaccine. Although such radical methods may be enforced in the military service, it is very questionable if the public is prepared to insist that civil patients be treated in a like manner; nevertheless, as an alternative to confinement and supervision in a hospital it might be legitimately proposed in such cases.

An authoritative report of the results of typhoid immunizing inoculations, anti-typhoid vaccination, in the U. S. Army was presented by Russel of the Army Medical Corps before the Congress of American Physicians and Surgeons held in Washington in May. Russel includes in his analysis the entire enlisted, and a predominating number of the commissioned personnel of the U. S. Army. His report indicates quite definitely that vaccina-

tion must be very nearly, if not wholly, an absolute, prophylactic preventative of typhoid infection.

In the light of subsequent clinical experience it is necessary to revise in a few particulars the report on typhoid vaccination in the YEAR BOOK for 1911 (pp. 678-680), especially with regard to the reaction of the patient to the injection of the typhoid cultures. In order that the immunization may be rendered effective, at least three successive injections must be made at intervals of approximately one week, and with increasing strengths of the killed organisms. These injections, particularly the first one, are followed by illness, the symptoms of which are those of typhoid itself, and although these signs soon disappear, the degree of fever and the depression may be quite severe. Each of the other injections may be followed by similar though commonly less marked signs. A short period follows the first injection, during which the patient seems to be sensitized to typhoid injection, and thus more liable to contract the disease than individuals not vaccinated, but this sensitization soon disappears after the succeeding inoculations, which are rewarded by an apparently absolute though temporary immunity against typhoid fever. The duration of this immunity is not yet known, but it probably does not extend beyond two or three years in most cases. Healthy individuals, as Russel states to be the case with soldiers, commonly do not have reaction to a disagreeable degree; many persons have no symptoms whatever following the injections, but some, and particularly those depressed by overwork or nervous strain, may suffer quite severely; not infrequently it is difficult to induce them after the first to take the subsequent inoculations, which, for the reason mentioned above, is a very necessary step, once the immunization has been begun.

In addition to the prophylactic treatment of typhoid by the use of the immunizing vaccine, much other valuable work of comparatively recent date has been done in regard to this important disease. Unquestionably the most far-reaching of these studies has been those designed essentially to improve the diet employed in the treatment of typhoid. Milk can no longer be considered appropriate as an exclusive food in this disease. LeFevre, among others, long ago showed that the volume of the stool on an exclusive milk diet is greater than that on a mixed diet, and patients themselves have insisted that in many instances milk causes indigestion and abdominal distress. Furthermore it is a simple matter of chemistry to show that it is almost impossible to give sufficient milk in typhoid fever to furnish enough calories of energy to replace those burned up by the tissue waste, to say nothing of an attempt to prevent this waste or to build up the resistance of the body by an adequate food supply.

During the past six years this subject has received very thorough study, particularly in the laboratories of Cornell University Medical College and in the wards of Bellevue Hospital. As a result of these investigations the caloric food intake of the typhoid patient is raised to or above that of the normal diet, inasmuch as it has been shown that his expenditure of energy is considerably above the norm. This is effective without causing digestive distress by the addition to the milk administered of lactose and cream, which greatly augment the caloric value of the milk, by the introduction of other and still more nutritious articles of diet such as eggs and meat juices, and by the use at proper periods of gruels and of sugar in various forms, as in jellies, ice cream, and the like. Not only is the lot of the typhoid patient made much more bearable and the oppression of his sickness and the degree of toxæmia relieved, but there can be no question that the modified diet, while it may not shorten the course of the infection, does very materially shorten the duration of convalescence, so that patients maintained on this intensive diet recover much more rapidly and are apparently much less liable to the numerous complications which so impede convalescence from this disease.

An important research conducted at the New York Hospital by Connor (*Arch. Int. Med.*, X, 534) has appar-

ently demonstrated that many of the obscure pains and aberrant excursions of temperature which follow typhoid fever are due to a definite anatomical change, namely, to a thrombo-phlebitis. Connor shows that most of the frequent pulmonary complications of typhoid originate in this manner, by a clotting of the blood within the lung veins. A marked tendency toward this complication has long been recognized in typhoid states, but its full significance has not been appreciated. The obscure persistent and recurrent attacks of fever are also commonly due to the same change, and the "sore muscles" and "tender points" which all physicians have so long recognized as commonly following typhoid are readily explained on the same basis. It is highly probable that with full recognition of this well-proven fact and the statistical confirmation that it occurs in from 10 to 15 per cent. of cases of typhoid, may lead to methods which may ultimately prevent the complication, although thus far attempts in this direction have been without avail.

Diphtheria. — Although the treatment of actual diphtheria is eminently satisfactory and affords one of the shining examples of the value of modern research to practical medicine, the preventive treatment of the disease is still far from certain. Diphtheria antitoxin administered early to those exposed to the disease almost invariably prevents the contraction of it, but this acquired immunity is not very lasting, so that in the case of such persons as nurses and physicians, who are more or less constantly exposed to the infection, frequent administration of phophylactic doses of antitoxin appears necessary. This is manifest in natural diphtheria also, since the immunity conferred by an attack of the disease is not of long standing; indeed, it seems that in some cases a susceptibility toward the infection is conferred by previous attacks. These tendencies have not been manifestly decreased by even the highly purified forms of diphtheria antitoxin now used, because the antitoxic principles are so quickly destroyed in the body or are excreted from it. Artificial immunity from the administration of the very best grades of antitoxin can be relied upon only for from two to three weeks.

Behring, whose name is already famous for his work in connection with diphtheria antitoxin, now suggests a new method of producing artificial immunity which it is hoped will prove to be more lasting in its effect. In brief his suggested method consists in the administration of actual diphtheria toxin, along with a balanced dose of antitoxin, which together apparently induce an immunity of much longer standing than has been previously attainable. The New York Board of Health has long utilized a somewhat similar method in the production of antitoxin from the horses utilized for that purpose. Although the method has successfully withstood laboratory experimentation, its employment in human medicine has not as yet been sufficiently wide for definite conclusions as to its ultimate value.

Diphtheria carriers have long been a serious problem, not alone to the hygienic authorities, but to the practitioner as well. It is found that while virulent diphtheria bacilli may remain for long periods in the throats of apparently normal individuals, who may nevertheless transfer actual diphtheria to others, under certain conditions, for example, as a result of catarrhal inflammation of the throat, auto-infection of the host himself may occur and aggressive diphtheria develop. Neither the use of antitoxin nor yet that of the toxin-antitoxin of Behring has any apparent influence in killing the bacilli in the throats of these diphtheria carriers, and much work is being carried on in an attempt to find some method thoroughly effectual in such instances. The usual methods of local antiseptic treatment of the throat, especially of the crypts and depressions in the tonsils, while undoubtedly beneficial, give far from certain results. Alden (*Jour. Am. Med. Assoc.*, LX, 1876) reports favorable results in this direction by the use of a spray of staphylococcus culture directed against the portions of the throat which offer a refuge for these persistent diphtheria bacilli. Alden employs essentially the method of Schiotz, which has further received the confirmation of investi-

gations by Lorenz, Ravenel, and several others.

Syphilis. — Therapeutic studies in lues during the year have emphasized the necessity of employing the older as well as the newer forms of medication. The fact that salvarsan is by no means a certain and absolute cure is now admitted, although its full curative value is recognized. Interesting recent studies of a clinical nature have been along the line of the syphilitic disease of the deep viscera, of the heart, aorta, and liver, and all these investigations have tended to show that serious disease of the deep organs originates very early in the infection, instead of only late, as has been taught in the past. This but emphasizes the importance of early diagnosis and prompt efficient treatment in all cases, no matter how mild they may appear to be. (See also *Pathology and Bacteriology, supra.*)

Kidney Disease.—Great activity has taken place recently in investigations of this very important class of diseases. Studies in pathological anatomy, however, have not reached any recent data of great importance; as a matter of fact they have as a rule rendered a classification of the diseases of these organs more rather than less difficult. Chemical investigations, consisting of examinations of the urine under various disease and physiological conditions, have not essentially altered our comprehension of the subject, nor have recent clinical studies improved matters much except in regard to more certain prognosis and more efficient treatment. From the great amount of earnest study and close observation have resulted only a few new facts. One of the most important of these is that most renal diseases are degenerative and not inflammatory in type, and therefore but few cases are really entitled to the name of nephritis. It is now generally understood that a diagnosis of kidney disease is not a sentence of early death, and that albumin in the urine is in many cases but a warning or indication and not an evidence of irradicable disease.

Notwithstanding the barrenness of laboratory investigation, great progress has been made in the management of the various renal disorders. More absolute diagnosis as to the degree and extent of the disease of the kidneys has been made possible by the employment of chemical and physiological tests which indicate the amount and character of excretory work which the organ may be able to do in any given case. The relationship of the renal function to that of other organs is being cleared up, and the dependence of certain types of renal disease on primary circulatory disorders has been shown. There is no question that the treatment of the various diseases of the kidney has been very much clarified, yet as to their true nature, how and why they develop and how they may be prevented, there exists very little exact knowledge.

Judging from numerous articles which have appeared in the medical journals, particularly in those chiefly concerned with practical medicine, there is a strong and growing belief on the part of medical thinkers that probably no definite line of separation exists between certain disorders of the circulation, especially such as induce œdema or result in various types of arterial disease, and hepatic and renal disturbances. The whole complex question of transudation and exudation is under study, and there can be no doubt that when the problems of renal disease are cleared up, the very closely associated diseases mentioned will also be put upon an understandable footing.

The most hopeful investigations along these lines appear to be those which involve experimentation on the lower animals. Among the earlier and still active investigators in America is Pearce, who, with his students, has published some very illuminative studies concerning renal disease. Christian and a group of fellow-workers in Harvard are proceeding along somewhat similar lines, and a widespread interest in the subject has been aroused among the workers in experimental medicine generally, which has been quickly reflected by more careful clinical studies of cases in hospitals and in private practice.

Leukemia.—There is a notable tendency in the clinical studies of the year to attack therapeutic problems, particularly in the more obscure and

hitherto hopeless types of disease. This has recently been particularly illustrated in the study of leukemia. Leukemia is a condition which has been not inaptly likened clinically and pathologically to a tumor formation affecting certain cells of the blood. The white blood cells are chiefly formed in the bone marrow, in the lymph nodes and in the spleen. Under abnormal adult conditions other foci for white blood-cell formation may exist. The disease of leukemia is manifested by a progressive weakness and anæmia, associated with enlargement of the liver, spleen and lymph glands of the body. Microscopic examination of the blood shows a very marked increase in the number of the white blood corpuscles, with, of course, a corresponding deterioration in the number and ability of the essential red cells. Tumors of considerable size result from the growth of the diseased lymph glands, and the spleen and liver may so greatly enlarge that the other organs of the abdomen may become much displaced. Changes in the bone marrow of like character are doubtless still more important, for they are the most constant pathological alteration of the disease though not so striking in the outward manifestations as the growth of the lymph glands and spleen. The patients suffer from a severe progressive anæmia and from great weakness, and they generally die either from these or from complicating terminal conditions to which they become very susceptible, especially to terminal infections.

Treatment of this disease has been very unsatisfactory. An attempt is primarily made to limit and check the abnormal formation of the white blood cells, and unquestionably our most efficient drug for this purpose in the past has been arsenic, originally given in its customary pharmacopœal forms, but more recently in the form of salvarsan or neosalvarsan. Although great benefit may and for a time usually does follow the use of arsenic, it is difficult to judge as to its real therapeutic value, because of a tendency in the disease for periods of improvement to occur spontaneously. It is generally admitted that arsenic acts beneficially, but no case of actual cure has been recorded, and sooner or later death follows. The X-ray has been scientifically employed in the management of this disease, the exposures being made over the enlarged glands and spleen and over the bone marrow of the long bones. Undoubted benefit has resulted, and more brilliant results have been thus achieved than are possible with arsenic alone, though arsenic has been consistently used in connection with the X-ray. Relapse, however, eventually takes place, and though the course of the disease may be checked and life very materially prolonged, no true cures have been authoritatively recorded.

Naturally, after the discovery of radium and its potency in a similar direction, it has been used in leukemia, but not with much success, chiefly because the nature of the agent does not permit of its controlled placement over the diseased blood-forming tissues. Plesch (*Berlin. klin. Woch.*, XLIX, 930) now reports the use of thorium X. This powerful drug is introduced intravenously, and experimental studies have shown that within a very short period of time a very high percentage of the drug given is found in the bone marrow, where the elemental disease process is apparently located. Great benefit followed in the case mentioned, but, of course, sufficient time has not yet elapsed to judge as to the final utility of this drug, obviously a very dangerous and uncertain agent, the use of which is justified only in such conditions as this, where the case appears to be hopeless.

It has been noted for some time past that workmen employed in rubber factories and the like who were constantly exposed to the fumes of benzol (not benzene) became frequently attacked by a type of anæmia due to a lack of formation of cells in the bone marrow. Microscopic study of the marrow in such instances shows a necrotic change apparently due to the action of the crude benzol. Selling has shown that in animals poisoned by benzol, a marked aplasia took place in the bone marrow, spleen and in the lymphoid tissues generally. Koranyi (*Berl. klin. Woch.*, XLIX, 1357) at once applied this knowledge to cases of leukemia, where precisely

this result is to be desired. Marked benefit was recorded by this student in several cases representing various types of the disease. After treatment the blood picture in several cases returned practically to the normal. The general condition of the patients also improves much, as is the case after X-ray treatment. The general effect of benzol in the treatment of leukemia has been corroborated by other observers both in Germany and America, and in most cases much more beneficial results have been attained when the benzol treatment was combined with the use of the X-ray, either alone or associated with arsenic. Overtreatment, however, gives very disastrous results, inasmuch as the formation of the red blood cells, at first accelerated, is finally checked or stopped, so that patients may die prematurely from the over-effects of the drug. Such an instance has been recorded by Billings (*Trans. Am. Assoc. Phys.*, 1913), who has, perhaps, made the most extensive studies of this treatment. Failures are recorded from the method associated with the X-ray and also used alone from Mt. Sinai Hospital (Libman), from Evan Evans at the Roosevelt Hospital, Lambert at Bellevue Hospital, and from Potter and Brooks at the New York City Hospital. There is, however, universal corroboration of the fact that the drug profoundly influences the course and character of the disease, and in it we appear to have secured another powerful agent by means of which physiological processes carried on to a pathological degree may be influenced. The scientific bearing of the treatment chiefly is far reaching, inasmuch as it adds to our rapidly growing list of agents which have a selective toxic tendency on growing cells, and it is thus of definite value in the consideration of the entire subject of tumor formation and the method of its possible cure.

Cancer.—Although steady progress has marked the investigation of the nature and cure of cancer and although the literature of the subject has been uncommonly rich in suggestive researches, little of applied value appears to have been perfected. Every laboratory and most clinics concerned in the investigation of the cancer problem are conducting extensive experiments along the lines of treatment by radium and other radioactive substances, such as thorium. Undoubted results are being reached experimentally, and it is beyond question that in such substances, and also in the X-ray, we have forces of definite value, especially in the amelioration of inoperable cancer. It is, however, to a certain degree unfortunate that so wide a publication of these as yet purely experimental studies appear in the lay press, because as a result patients afflicted with early and entirely local cancers are likely to delay operation in the hope of some mysterious drug agent effect for such a time that operation can no longer cure. It must be impressed on the public that, although much hope is offered for the future, the only real cure as yet known is the early use of the surgeon's knife. (See also *Surgery, infra.*)

Clinical research along these lines of cancer study has been largely concerned during the year with methods of early diagnosis. As the matter now stands it is certain that at its outset cancer is a local disease which may be eradicated by timely and skillfully directed surgery, a fact which can not be too impressively emphasized. Among researches of this nature may be mentioned a suggestively successful method of diagnosis of deep internal cancer which does not manifest itself by any external signs by means of certain serum tests relying on the principle of anaphylaxis. Ronsoloff (*Jour. Am. Med. Assoc.*, LXI, 8) reviews the work along these lines and reports 50 cases of successful early diagnosis by this method. On account of the frequency of cancer of the stomach and the difficulties of sufficiently early diagnosis to permit of curative operation, it is well to mention under progress in medicine, although the method is strictly surgical, an instrument devised by Harry Janeway by means of which the mucous membrane of the stomach may be directly inspected, and in case of suspicious areas, bits of the tissue removed for the microscopic examination. This instrument has been already successfully employed in a considerable number of instances.

Pellagra. — Although a disease of great antiquity, pellagra has but recently received the attention which its wide dissemination and importance demand. The disease has been for a long time a matter of great public interest in Italy, where the first thorough studies of it both sociological and medical appeared. A knowledge of its frequent occurrence in this country has been chiefly excited through the efforts of the U. S. Public Health Service, and through numerous publications of physicians residing in those portions of the country where the disease occurs most frequently, though sporadic cases appear in almost all parts of America.

The disease presents a curious association of skin changes which are limited almost exclusively in the early cases to those parts of the body exposed to the light; that is, to the hands and face. It is seen in its most active forms during the spring and early summer, and subsides, at least to a certain degree, with the onset of winter. In its latter stages it is characterized by various types of mental and nervous disease, and appears to be the casual factor of a very considerable proportion of the cases of insanity developing in affected districts. Although not hereditary, the offspring of pellagrous parents are very commonly defective mentally as well as physically, and the problem therefore becomes of great sociological importance, a fact recognized by a commission recently organized for the study of this condition along sociological as well as strictly medical lines.

The cause of the disease is still the subject of great divergence of opinion. It has long been noted that the disease occurs most frequently and in a practically endemic type in those localities where the staple and almost exclusive article of diet is maize. It is admitted, however, that healthy and properly cured corn, which is one of our most valuable foodstuffs, is in no way likely to cause the disease. On the other hand, pellagra occurs most widely and in its most aggressive forms in those years in which the corn crop on which the people depend for their chief food is either poor, or, due to weather conditions, is harvested prematurely and before proper curing is possible. Certain investigators believe that the disease is caused by some contagious and infections agent which may or may not be connected with improperly cured corn. No certain infection, however, has as yet been shown to exist, and apparently the prevailing opinion among physicians most familiar with the disease is that it is due to some metabolic condition induced by the eating of spoiled Indian corn.

Harris, of New Orleans (*Jour. Am. Med. Assoc.*, LX, 1948), reports the experimental production of pellagra in the monkey by filtered extracts of the tissues from diseased cases. Myers and Fine (*Am. Jour Med. Sci.*, CXLV, 705) record an extensive series of studies of the metabolism of pellagrins. Several monographs by physicians who have extensively studied the condition in their own localities have also appeared during the year. As an excellent type of these may be mentioned that of Niles, of Atlanta.

Undoubtedly the most important print concerning the subject which has been recently published, discussing it in all its important phases, is that of Grimm, of the U. S. Public Health Service (*Jour. Am. Med. Assoc.*, LX, 1423). Grimm's conclusions may be summarized as follows:

> More cases developed proportionately among the white than among the colored population of the same districts. More cases developed among the females of both races than among the males. More cases developed at the ages between 20 and 40 than at any other period of life. More cases had their origin during the months of May and June than in the other months, and more in 1911 than in any previous year. More cases developed under conditions of poverty than those of comfort, and more under conditions of comfort than those of affluence. More cases developed in the vicinity of other cases than otherwise. None of the facts indicate that pellagra is hereditary.

Grimm concludes with the important observation that the question of the foods used by the people among whom pellagra is prevalent deserves consideration as a possible etiological factor concerned in the production of the disease, and he further states that the most promising field for investigation of the etiology of pellagra is the food being used by the people in whom pellagra is developing, thus substan-

tiating in general the conclusions reached by the Italian national investigation committee and what appears to be the general consensus of opinion as to the probable source of the disease. It is notable that while cure or even successful amelioration of the disease when once established seems to be difficult, prevention appears to be quite readily accomplished by a healthy mixed diet from which spoiled corn is absolutely eliminated.

SURGERY

JOSEPH C. BLOODGOOD

American College of Surgeons.—There was formally established in Chicago on Nov. 13 the American College of Surgeons, a non-teaching organization similar to the Colleges of Surgeons of England, Scotland and Ireland. Its organization, which began more than a year ago, was brought about chiefly by the enthusiasm and executive ability of Dr. Franklin H. Martin, of Chicago, who has become the general secretary of the College. Dr. Martin began his propaganda at the psychological moment, at the crest of the wave of interest in medical education, created principally by the activities of the special committee of the American Medical Association and the Carnegie Foundation for the Advancement of Teaching. The investigations of these two agencies have brought about a reduction in the number of medical schools in the United States and the improvement of the remainder, through the raising of entrance requirements and the strengthening of curricula. Their next work will be the investigation of hospitals throughout the country with the view of eliminating the poorer ones which cannot be improved and raising the standard of hospital service.

Medical schools and hospitals are, therefore, in process of standardization, and the establishment of the American College of Surgeons, as an educational movement having for its object the standardization of the qualifications of graduates of medicine who desire to practice surgery, is perhaps one of the most important events of years in American surgery. Surgery is becoming such an exact science that the time required to become proficient in it has increased. The chief object in the establishment of the American College of Surgeons is to enforce upon those who wish to become members this necessary longer training.

All the surgical associations throughout the country have grown tremendously in strength. Canadian and American surgeons meet together and attempt to educate each other by presenting papers on the more important problems of surgery. The last meeting of the Clinical Congress of Surgeons of North America in Chicago on Nov. 10-15, with over 5,000 surgeons in attendance, demonstrated, however, that the largest number of surgeons can be gathered together when the method of instruction is chiefly by demonstration, operative clinics, and not by didactic papers. There are other smaller, so-called clinical societies among surgeons who visit each other in turn, and see each other's work at the bedside, in the operating room, in the laboratory, and in teaching. The chief advance in surgery in recent years, to which the year 1913 has made perhaps the greatest single contribution, is the attempt on the part of surgeons in Canada and in the United States to improve their own efficiency by newer educational methods, and to insist upon a longer course preliminary to taking up the practice of surgery.

Shock.—The local result of an injury (trauma) is a wound, which may be a bruise, cut or burn. Almost every injured person exhibits also a general disturbance called, even by the laity, shock. In all operations there is some shock; in the majority it is not dangerous, but it adds in all cases to the discomforts, to the complications and to the period of convalescence. In some operations, especially upon patients weakened by disease, shock may be a very dangerous factor. The chief elements of shock are the trauma from the wound made by the knife, and from

other manipulations during the operation. The fact that the patient may be under general anesthesia does not prevent painful sensations from reaching certain cells in the brain, and producing almost as harmful an effect as if the patient were entirely conscious. For years many operations have been performed painlessly, without general anesthesia, by what is called local anesthesia, in which the skin and the nerves and all the sensitive tissue beneath the skin are injected with a solution of cocaine, or some other drug having a similar effect.

For many years Dr. George W. Crile of Cleveland has been carrying on investigations in the problems of shock, which have reached their culmination in the past few years, and have attracted most attention during 1913. He calls his method anoci-anesthesia. Its object is to eliminate the shock of operation as much as possible. From beginning to end of the operation he infiltrates all sensitive tissue with a solution of 1 to 400 novocain, and hopes in this way to prevent any painful impressions reaching the brain. The patient is made unconscious with a mixture of nitrous oxide and oxygen, popularly spoken of as "gas." In some cases, in addition, a little ether must be administered. The object of putting a patient to sleep at all when the operation is being performed without pain, is to eliminate the fear of possible pain. This fear may produce what is called "psychic shock." Gas is employed rather than ether or chloroform, because it is a less poisonous drug. Chloroform and ether, even properly given, are to a certain extent toxic, and may give rise to a condition called "toxic shock." Crile's combination, therefore, of local and general anesthesia has for its object the diminution or elimination of psychic, traumatic and toxic shock. All surgeons agree as to the danger of hemorrhage and hemorrhagic shock, and all surgeons perform operations to-day with as little loss of blood as possible. However, many surgeons do not agree with Dr. Crile. The majority still employ ether rather than nitrous oxide and oxygen, and Crile as yet has few followers in the combination of local with general anesthesia.

Whether one agrees or not with Crile, his experimental investigations and clinical results have made a profound impression upon American and English surgeons, and during the year surgeons have given more attention to the subject of shock and its factors than ever before. It undoubtedly is one of the great problems in surgery. In the hands of the most experienced and expert surgeons a certain number of patients do not survive the operation, and no other cause can be found than shock. If we can eliminate shock by the means advocated by Crile or yet to be discovered by others, the mortality of surgery, as well as its discomfort and period of convalescence, will be materially reduced.

Anesthesia.—The method of intratracheal anesthesia has received the greatest attention during the year. This method of anesthesia was elaborated by Meltzer and Auer in the physiological department of the Rockefeller Institute, for use in animal experimentation, and then presented to surgeons as a safer method for intrathoracic surgery. In operations upon the heart, blood vessels, lungs and œsophagus, the chest cavity must be opened. The moment one opens one side of the chest, the difference in atmospheric pressure leads to some collapse of the lung. When both sides of the chest are opened, both lungs collapse, and the patient dies. Previous to the intratracheal method, there was employed a special operating room. The head of the patient extended through a small opening outside of the operating chamber, and breathed the air under normal atmospheric pressure, while the air pressure in the chamber where the surgeon worked could be so regulated that on opening the chest cavity, collapse of the lung was prevented. This was known as the Sauerbruch chamber. There was another method, in which the head of the patient lay in a box, and breathed air whose pressure could be regulated. In the intratracheal method the patient is put under ether. With a special light and special instruments, a tube is passed through the mouth, pharynx and larynx into the trachea. This

tube is attached to a special apparatus which regulates the atmospheric pressure, and at the same time carries with it the ether vapors. The experience of individual surgeons in the use of this method is increasing, and the efficiency of the many different types of apparatus for accomplishing the same object is being tested.

Cancer.—In the Spring of 1913 there was formed in New York, by a number of surgeons and enthusiastic laymen, the *American Society for the Control of Cancer*, the object of which is to bring before the public the facts already available which demonstrate that the number of deaths from cancer can be decreased. Cancer never begins in healthy tissue. There is always some previous defect or disease known as the precancerous lesion. The precancerous lesions may be little tumors which have been present since birth or noticed later in life, in the form of moles or warts on the skin, or small nodules of different sizes, hard or soft, beneath the skin, especially in the breast and thyroid gland. These little tumors, whether of congenital or later origin, may change into cancer. In another group of precancerous lesions there is an unhealed area of skin or mucous membrane (ulcer). The longer such a lesion, from any cause, remains unhealed, the greater the danger of cancer. The danger is greater when the ulcer is situated in certain localities, especially the tongue and lip and the gum close to the teeth, and such unhealed ulcers are more likely to become cancer in older people, very unlikely in children and young adults. In a third group of lesions the skin or mucous membrane is subjected to constant irritation, for example, by smoking, or using tobacco in the mouth in any form. There may be first a little burn, or a white patch (leucoplakia); in such an area at any time an ulcer may develop, and in this ulcer a cancer. The irritation of the gum about decayed teeth may lead to cancer, or the irritation of the mucous membrane of the tongue or cheek from a sharp and ragged tooth. In a fourth group of cases, there is the history of an injury or contusion, and a tumor subsequently developing in the injured area. The tumor is usually of the type of a cancer called sarcoma, and is situated most frequently in the bones or muscles.

Surgeons have known for years of these types of precancerous lesions. Every patient who comes to the surgeon with a fully developed cancer remembers the beginning of the cancerous growth. Surgeons have developed what is called complete and radical operations for cancer in this late stage, but although the number of cures is greater than what might be expected, it is relatively small. Death from cancer is on the increase. With these facts before them, surgeons have felt for years that to decrease the number of deaths from cancer the people must be educated on the significance of a lump, wart, mole, nevus (whether in or just beneath the skin, or deeper) of the unhealed ulcer, of chronic irritation, and of trauma. Experience shows that if patients seek advice in the precancerous stage, and the lesion is completely excised while the microscope shows no evidence of malignancy, there are 100 per cent. of cures. If the microscope shows beginning cancer, the percentage of cures varies from 85 to 100 per cent. This variation is associated with different types of cancer and different localities. When, however, the patients delay to seek advice until the local disease has grown and can be diagnosed as cancer by sight and touch, the probability of a cure, even after the most radical operation, varies from 60 to 10 per cent. and in many instances the local disease has extended beyond the possibility of removal, and has become in a surgical sense hopeless.

The educational propaganda to be carried on by the Americal Society for the Control of Cancer has received an impetus from the splendid services of the Cancer Campaign Committee, under the chairmanship of Dr. Thomas S. Cullen of Baltimore, who was appointed by the Clinical Congress of Surgeons of North America late in 1912. The work of this committee has inspired an investigation of the cancer problem by Samuel Hopkins Adams, who began in May the publication of a series of articles in *The Ladies' Home Journal*, *Collier's Weekly*, and *McClure's Magazine*, the effect

of which has already been profound. The test of such a propaganda of education will be the diminution of the death rate from cancer. We know that the total number of deaths from cancer per annum in the United States is reaching 75,000. We know that the percentage of cancer in the total death rate is increasing. The two factors over which we have control are the duration of the disease and the treatment. We may expect, by education of the people, to decrease the duration of the disease, with the hope that most external cancers will come for treatment in the precancerous stage, and that internal cancer will come earlier than now. An improvement in methods of treatment can be accomplished by the better education of the surgeon.

The paper of William J. Mayo on cancer of the stomach, presented before the American Medical Association at Minneapolis in June, is the most important contribution in this department of surgery during the year, not in the sense that it presents new methods of diagnosis or treatment, but because it represents in the number of cases probably the largest experience of any clinic in the world; one thousand cases of cancer of the stomach have been observed in the Mayo Clinic at Rochester, Minn. Dr. Mayo shows that the larger proportion of inoperable cases is due to delay on the part of the patient and physician after definite abdominal or gastric symptoms have shown themselves. The delay is also increased by faulty diagnostic methods. When these patients come to the surgical clinic in a possible and reasonably early stage, Mayo's experience demonstrates that the removal of the cancer (pylorectomy or gastrectomy) is an operation with little or no mortality in skilled hands, and the percentage of cures varies with the duration of the symptoms and the extent of the local growth. In cases in which the tumor is freely movable and in the gross looks like ulcer and under the microscope shows only the beginning of cancer, there are practically 100 per cent. of cures.

Where the lesion is a fully developed cancer, one in which no one would disagree from the microscopic examination, the percentage of cures is about 35. This paper has made a profound impression upon the general public and the medical profession, which should result in bringing to surgical clinics throughout the world patients with ulcer and cancer of the stomach at a period of the disease in which operation promises the best assurance of a permanent cure with the least danger to life, with the least discomfort and with the shortest period of disability. (See also *Medicine, supra.*)

Nerves and Brain. — Neurological surgery has become a special branch. Among English-speaking surgeons the names of Victor Horsley of England and Harvey Cushing of this country are perhaps the best known among the small band of surgeons who devote their entire time to experimental investigation and clinical work on the diagnosis and treatment of lesions of the brain, spinal cord and nerves. The two most important contributions of the year in this field are due to Cushing, the one his monograph on the *Pituitary Body*, and the other, his paper before the Clinical Congress of Surgeons in Chicago in November, reporting the results of 160 operations for the relief of facial neuralgia. The operation consists of an attack on the Gasserion ganglion, either the evulsion of the ganglion, or the division of its posterior root. Cushing deserves credit for devising a new approach which makes the operation safer and more certain. In his paper he emphasized the fact that with proper experience and care the operation is successful in 100 per cent. of cases (Cushing lost but two cases, and these were among his first operations), that it is not mutilating in the slightest degree, and that the pain does not recur. Alcohol injections of the nerve do not promise the same permanent results. The public and the profession should know, however, that operations upon the Gasserion ganglion should be performed only by experienced surgeons with special training along this line. Alcohol injections, although they do not offer the same permanent relief, often give freedom from pain for from one to three years, and these injections can be made with very little danger. In

fact, those who employ them most and with the best results are not surgeons but physicians.

Cushing's monograph on the *Pituitary Body* represents years of experimental work and clinical experience, undoubtedly pioneer and lasting work. This structure is a gland of the functional type of the thyroid, pancreas and adrenal, that is, it has internal secretion of vital importance to life. Similar to other glands, we observe general systematic disturbance due to hypo- or hyper-secretion. In addition, on account of its position at the base of the skull, lodging in a small bony cell, the enlargement of this gland produces trouble from pressure within the skull cavity.

Aneurysms.—The most important and interesting addition of the year to our treatment of aneurysms has been made by William H. Halsted, of Baltimore (*Trans. Am. Surgical Assoc.*, XXXI, 218). For a number of years Prof. Halsted has been experimenting with methods which will partially occlude arteries. In the treatment of many aneurysms, if one deliberately ligates the artery and suddenly checks the circulation to the extremity, especially the leg, gangren of the limb may follow; but if the artery is partially occluded, sufficient blood may get through the main trunk until collateral circulation is established, and then, when the blood in the sac of the aneurysm clots and the sac is completely obliterated, the life of the limb is saved by the established collateral circulation. When one must treat an aneurysm of the thoracic or abdominal aorta, complete ligation is out of question. Here the partial occlusion of Halsted offers the chief hope. In Dr. Halsted's paper before the American Surgical Association he considered chiefly the partial occlusion of the thoracic and abdominal aortae. In the beginning of his experimental work Halsted employed metallic bands; recently he has employed bands made of fresh tissue from the fascia lata or from the fresh aorta of another animal.

Another important contribution of the year is that of Rudolf Matas of New Orleans, "On the Study of Collateral Circulation and the Treatment of Aneurysm" (*ibid.*, 195).

Blood Transfusion.—Transfusion of blood from one individual into another is the best treatment for threatened death due to loss of blood. There are other indications for transfusion of blood, the hemorrhages of the newborn and recurrent hemorrhages in adults associated with various diseases. Alexis Carrel of the Rockefeller Institute made direct transfusion from the artery of the donor to the vein of the donee by his method of arteriovenous anastomosis. Crile simplified it by the introduction of a special cannula, and in the last few years there have been many modifications. The chief contribution of the year on blood transfusion comes from Edward Lindeman, of Bellevue Hospital, New York. With a set of special cannulae and syringes he aspirates the blood from the vein of one or more donors and then injects this blood into the vein of the donee (*Am. Jour. of Diseases of Children*, VI, 31). The method renders direct transfusion of blood simple, painless and rapid and almost any physician should be able to do it in emergency. Previous methods required considerable operative skill and experience. The present status of blood transfusion, bringing all the methods up to date, has recently been presented by Hartshorn (*Yale Med. Jour.*, XVIII, No. 5; *Jour. Amer. Med. Assoc.*, LVIII, 814).

Infections.—Surgery can deal with a local infection and practically always accomplish a cure, but for general infection we have as yet no specific treatment except in syphilis. The Wassermann reaction and the intravenous treatment with Ehrlich's salvarsan are not contributions of 1913, but perhaps the experience of the world will be found in the literature of this year, surely more so than in any previous year, and perhaps more than in subsequent years. The method of diagnosis from the blood reaction established by Wassermann and the chemotherapeutic measures of Ehrlich have practically been established. As yet no other chemotherapeutic agents, vaccines and antitoxins, have been developed for the various other infections which come for surgical treatment with both local and general manifestations. Churchman

of Yale University, however, has done some splendid experimental work in the line of chemotherapeutics in general infection. He employs various aniline dyes and finds that certain bacteria take up these dyes and are destroyed. In the experimental culture tube he has obtained some very remarkable results, but as yet is not ready to apply these results to practical surgery. To give any drug by intravenous injection, either in small quantities up to one pint or more, is not a difficult procedure. Salvarsan is given intravenously in the treatment of syphilis. In those infections which are general and in which the infecting bacterial agent is distributed in many parts of the body and in the blood, the ideal agent would be one that could be administered intravenously. Although there has been unusual activity during the year in experimental investigations along this line, there has been no practical result.

Wounds.—In a wound made by operation the most important thing is to prevent infection. Lister revolutionized surgery by the simple introduction of pure carbolic acid in 1865. Since then the method of cleansing the hands of the surgeon and the skin of the patient in the region of the field of operation has gone through many changes. Pure carbolic acid, or dilute carbolic acid, except in certain special cases, has practically been given up. The first substitute was bichloride of mercury, more recently alcohol, and now tincture of iodine. The year 1913 has been characterized by the almost universal adoption of the full-strength tincture of iodine for the preparation of the field of the operation. The skin is shaved dry or with alcohol without previously cleansing with soap and water; with a piece of gauze saturated with the tincture of iodine the skin is painted and the iodine solution allowed to dry, or, in some instances, washed off with alcohol. As yet surgeons do not use iodine to cleanse their hands, because one cannot use iodine repeatedly without incurring the danger of irritation.

This method of preparing the skin with tincture of iodine simplifies operative technique. The iodine or the alcohol disinfect not only the surface of the skin, but the so-called pores which are the openings of the hair follicles, sweat and sebaceous glands. This is antiseptic, not aseptic surgery, and it may be looked upon as a return to a method somewhat akin to Lister's original procedure with carbolic acid. Every surgical clinic reports good results. The only danger seems to be that a solution of bichloride of mercury may come in contact with iodized skin. This drug with iodine produces a very irritant chemical combination, a danger against which everyone who uses iodine must constantly guard. Undoubtedly the laity will soon be educated to use the tincture of iodine in the treatment of simple wounds. It seems likely that we can eliminate bichloride of mercury from surgery, as it certainly should be eliminated from the list of domestic remedies.

Suture Material.—Since the beginnings of surgery there has always been a difference of opinion with regard to the choice of silk or catgut as the material for ligating vessels and closing deep and superficial wounds. William H. Halsted, of Johns Hopkins University, has made a most important contribution during the year on the finer points in technique, and on the greater certainty and safety of silk (*Jour. Amer. Med. Assoc.*, LX, 1119; review by Bloodgood in *Progressive Medicine*, Dec., 1913, p. 224).

PUBLIC HEALTH AND HYGIENE

SELSKAR M. GUNN

General Sanitary Condition of the United States.—The year has not been accompanied by any unusual amount of communicable disease throughout the United States or in any large section of it. Localized epidemics have been reported. No very unusual advances have been made but it is evident that the year has shown a general improvement in the public health. A great deal more attention is now being paid to the whole sub-

ject, as is witnessed by the unusual amount of public-health legislation which has come before the various state legislatures. Many of these legislatures now have special committees on public health and an effort, which so far has not been successful, has been made to have Congress appoint a new Congressional Committee on Public Health. The importance of rural sanitation is becoming more generally recognized and very important work along this line is now being performed by many of the state boards of health, particularly in the South.

Sanitation in the Army.—Major R. B. Miller, in reporting on the sanitary record of the Second Division of the U. S. Army in Texas for the five months from March 1 to July 31, states that there was not a single case of typhoid fever among the 12,000 men in the camp. The sick rate has been less than in any other camp the Army has ever had. The reason for the improved results are attributed to anti-typhoid vaccination and to the systematizing of sanitary effort, which has been largely aided by the increasing knowledge and appreciation of both officers and men of the great value of sanitary measures. (See also *Medicine, supra;* and XII, *The Army.*)

Sanitation in the Ohio Floods.—The extensive floods of 1913, especially in Ohio (see XXIII, *Civil Engineering*), brought about conditions which seriously menaced the public health. President Wilson, realizing the necessity for prompt action, directed the Treasury and War Departments to send all of the available officers of the Public Health Service and of the Army into the districts where the danger was greatest, and also ordered large quantities of vaccine to be sent into the flood districts to be used in the prevention of smallpox and typhoid fever. The National Red Cross also carried out much work, which undoubtedly assisted in curtailing the amount of preventable disease which might be expected in communities which were absolutely disorganized (see XVIII, *Charity*). The prompt work of these officials acting in coöperation with the state and local officials went a long way toward preventing serious outbreaks of disease.

Sanitation in the Canal Zone.—Through the wonderful work of Colonel Gorgas and his assistants of the Department of Sanitation of the Canal Zone, the elimination of preventable disease has reached a very high mark during the year. During the month of August there was not a single death from disease amongst the 12,481 white American men, women and children on the Isthmus. The *Journal of the American Medical Association* (Oct. 25, 1913, p. 1544) comments on this record thus:

> It is a fitting climax to the work of Col. Gorgas, which has challenged the admiration of the civilized world, that the month which probably marks the high tide of American occupancy on the Canal Zone should have passed without a single death from disease in the American colony.

U. S Public Health Service.—A great impetus was given to the work of the U. S. Public Health Service by the passage of the act of Aug. 14, 1912 (*A. Y. B.*, 1912, p. 715). Coöperation of the Service with state and local health authorities has been increased. Special efforts have been made to encourage the reporting of diseases and to collect sanitary information, especially on recently enacted health laws and ordinances. All these data are published in the weekly *Public Health Reports*, the issues of which have almost doubled within the year. In order to improve the character of the weekly morbidity reports made to the Service by state and local health authorities, a model law providing for the notification of the prevalence and occurrence of certain diseases was drafted and adopted by the eleventh annual conference of state and territorial health authorities with the Public Health Service on June 16, 1913. It is hoped that this law may be passed by the different states of the Union.

The Service keeps very close watch on outbreaks of communicable diseases in foreign countries in order to guard against their importation into the United States. During the year cholera was prevalent in southern Europe and also in various points in Asia. Yellow fever was reported from a number of places in South America.

Plague was also reported in many foreign countries and one human case occurred in the United States. Many cases of smallpox were reported during the year. Most of these were mild, but virulent outbreaks have occurred in a number of states. A few outbreaks of poliomyelitis (infantile paralysis) were reported, the greatest prevalence being in Arkansas and Texas.

The Service conducted a number of important investigations. Typhoid fever was investigated in relation to river traffic on the Mississippi River. Rural typhoid was studied in central and southern West Virginia. Special surveys of infectious and contagious diseases among the Indians were carried on (see "Trachoma," *infra*). Investigations on pellagra were conducted during the year. The headquarters for this work were located at Savannah, Ga. A preliminary survey was made of the pollution of the Missouri River, and most thorough studies of the pollution of the Potomac and Ohio rivers are now being carried out. Studies were undertaken of the alleged Friedmann cure for tuberculosis (see "Tuberculosis," *infra*). Special investigations in connection with malaria, Rocky Mountain spotted fever and other diseases dangerous to the public health were carried on. Attention is being paid to school inspection and industrial hygiene. Plague-suppressive measures in California and nearby states were continued during the year. In San Francisco more than 90,000, and in Oakland and Berkeley 40,000, rats were collected and examined. Coöperation was rendered state and local health officers of Ohio and Indiana during the floods. During the year interstate quarantine regulations were issued prohibiting the common drinking cup and common roller towel and requiring pure drinking water and ice for passengers in interstate traffic. The extent of the enforcement of these regulations has been highly commendable. The Service also conducted extensive work in connection with maritime quarantine and immigration. The splendid character of the work performed is self-evident and there seems to be every reason to believe that in the future the Service will be of even greater importance to the people of this country.

Proposed Federal Department of Health.—A revised bill was introduced in the Senate by Senator Robert L. Owen providing for a Federal Department of Health, similar in character to bills previously introduced by Senator Owen which had not been passed. The bill provides for the creation of a Department of Health and a Secretary of Health with a seat in the Cabinet. The Department of Health is to have transferred to it the Public Health Service of the Department of the Treasury, the Bureau of Chemistry of the Department of Agriculture and the Division of Vital Statistics of the Bureau of the Census. In addition to the Secretary of Health the office of Commissioner of Health is created by the bill. Many objections have been raised against the establishment of a national Department of Health and a very active campaign has been conducted against the passage of this legislation. No definite action has been taken.

Meat Inspection.—The Secretary of Agriculture, believing that the interests of the people may be more thoroughly safeguarded by an examination from time to time of the work actually going on under the present system of meat inspection, appointed in June several well known authorities on hygiene and sanitation to make an examination of some of the principal slaughtering and packing establishments. It was definitely stated, however, that such examinations would in no wise modify or change the present system, but would rather be supplementary to the work now in hand and would be undertaken to safeguard the people and the interests of the Department. As a part of their instructions they were informed by the Secretary:

> It is my desire that you report directly to me fully and frankly the conditions as you find them at the various packing establishments, together with such recommendations looking to the improvement of the service as in your judgment may seem best.

The experts appointed are to report directly to the Secretary. They are: Prof. William T. Sedgwick, Massachusetts Institute of Technology; Dr. V. A. Moore, New York State Veterinary

College, Cornell University; Dr. J. W. Connaway, Missouri Agricultural College; and Prof. M. P. Ravenel, University of Wisconsin.

Public Baths.—The second annual meeting of the American Association for Promoting Hygiene and Public Baths was held at Baltimore on May 13-15. The subjects discussed were: the safeguarding and care of indoor swimming pools; sanitation of swimming pools; campaign work for promoting public baths; relation of public athletic work to public baths; the importance of swimming and life-saving instruction. Reports by members of the Association showed important progress in the public-bath movement in the cities of the country.

Special Training for Health Officers.—An important step in the special training of health officers has been made in the organization of the School for Health Officers of Harvard University and the Massachusetts Institute of Technology, acting in cooperation. As a result of this cooperation properly qualified persons can enter the School and take the courses in public health in both of these institutions. No degree will be awarded for the completion of the courses. A certificate, to be known as the Certificate of Public Health (C.P.H.), will be granted to all who complete the requirements. In order to obtain the certificate in one year, it is required that the candidate be a graduate either in medicine or in biology and public health, or be otherwise highly qualified. It seems probable that the organization of this high-grade school will mark a distinct epoch in American public-health service. The administrative board of the school is composed of Prof. William T. Sedgwick, of the Massachusetts Institute of Technology, and Dr. Milton J. Rosenau and Prof. George C. Whipple, of Harvard University.

Sanitary Surveys.—The social surveys which many American cities are now undertaking give promise of more systematic and premeditative planning to meet the health and sanitation needs of the communities. During the year a considerable number of cities have had made special studies of health conditions, particularly of their public health departments. The Russell Sage Foundation through its Division of Surveys and Exhibits has conducted surveys of various kinds in a number of cities, and special emphasis has been placed on public health. The development of analytical methods for diagnosing the health problems of the community marks an important step forward, and is an additional proof that communities are realizing more than ever the desirability and necessity of preventing unnecessary sickness.

Public Health Legislation.—The *Journal of the American Medical Association* in its issue of March 22 stated that up to that date since the beginning of the year 426 bills on different public-health subjects had been introduced in 41 legislatures. This indicates the great interest in public-health subjects. Unfortunately, much of the proposed legislation was of very questionable value. The bills introduced are listed as follows:

> Thirty-four amending existing board of health laws; 12 on vital statistics; 94 on the regulation of the practice of medicine, amendments to existing practice acts or bills providing boards for some special sect; eight on registration of nurses; six each on the regulation of dentistry and pharmacy; 37 on the regulation of food and drugs, habit-forming drugs, etc.; nine bills on milk and dairy regulation; 55 on the control of disease; 21 on the sanitary construction of public buildings, etc.; six on occupational diseases; six on quarantine provisions; 20 on the care of the insane, feeble-minded, epileptic, etc.; 31 on marriage, eugenics, sterilization of criminals, etc.; 10 on vaccination, serums, etc.; 10 on water supply and sewage disposal; three on medical expert testimony; 14 on health supervision of schools; three anti-vivisection bills and 26 bills on miscellaneous subjects.

Occupational Diseases.—A marked interest in industrial hygiene has been shown during the year and legislation providing for investigations of the causes of industrial diseases, for the reporting of occupational diseases by physicians, for the enforcement of preventive measures and for compensation has been adopted in many states.

The state Board of Labor and Industry of Massachusetts, which was created by the legislature of 1912, was appointed in July and has already commenced work. This Board has very considerable powers, and its appointment undoubtedly marks the era of

much progress in this state along the lines of occupational-disease prevention.

Ohio appropriated $14,000 for the state Board of Health to conduct a two years' survey of occupational diseases. This survey is now being conducted by Dr. Hayhurst. A bill to provide for the prevention of occupational diseases in California was passed by the legislature with the backing of the state Board of Health, but was killed by the Governor with the pocket veto.

Maine, Minnesota, New Hampshire, and Ohio passed bills adopting the standard form for reporting occupational diseases as drawn up by the American Association for Labor Legislation. This bill was vetoed by the Governor in Pennsylvania. Bills for the prevention of occupational diseases were passed in Ohio, Pennsylvania and Missouri. These three states, in addition to Illinois, are now requiring the monthly medical examination of persons employed in certain unhealthy trades and regular reports of the conditions found have to be made to the proper state authorities. (See also XVII, *Labor Legislation.*)

While no definite laws providing compensation for occupational diseases were passed, the outlook is very favorable for such legislation. The introduction of the Kern bill in the United States Senate, extending the principle of compensation to include occupational diseases, has attracted much attention.

The Public Health Service has also commenced to take up the question of industrial hygiene and contemplates a comprehensive study of tuberculosis in relation to industries in a large manufacturing center. As an aid in the enforcement of an Act of April 9, 1912 (*A. Y. B.*, 1912, pp. 335, 413), providing for a tax upon white phosphorous matches, the Service has prepared regulations providing a systematic inspection of match factories, and systematic examinations have also been begun to determine the constituents of matches on the market. It is anticipated that the passage of this Act and its enforcement will cause the disease known as "phossy jaw" to become a matter of history.

The American Association of Labor Legislation has continued its very active programme, and much of the legislation passed by the different states during 1913 can be directly attributed to its efforts. It seems very certain that a tremendous advance in the prevention of industrial diseases and accidents will be made in the immediate future.

Tuberculosis.—In November, 1912, Dr. Friedrich Franz Friedmann of Berlin reported to the Medical Society of that city a method of treatment for tuberculosis, consisting of injections of what he described as living, avirulent tubercle bacilli. He stated that the original source of these bacilli was a tuberculous turtle. In his communication he claimed many cures as a result of his treatment and was corroborated by several other physicians, although the leading members of the profession present expressed scepticism as to the legitimacy of the claims. Widespread publicity followed, particularly in America, and in February, 1913, Dr. Friedmann came to New York to demonstrate his treatment in person. The U. S. Public Health Service and the New York City Department of Health immediately demanded full information regarding the preparation of the new vaccine and the methods of employing it before granting permission to use it within their respective jurisdiction. Dr. Friedmann was finally forced to yield to the extent of furnishing his preparation to the authorities and demonstrating the treatment under the auspices of the Public Health Service. A series of carefully observed cases was treated in New York City and later another series in Rhode Island. Dr. Friedmann subsequently visited Canada and treated a number of patients in that country. In May, Dr. J. F. Anderson of the Public Health Service made a preliminary report on the cases under the care of the Service in New York, stating "that the effects thus far observed do not justify the confidence in the remedy which has been inspired by widespread publicity." In September Dr. H. L. Barnes reported on 120 cases of pulmonary tuberculosis treated in Rhode Island, stating that none of them had shown the ben-

efits claimed by Dr. Friedmann and that 17 had shown "an increased activity of the disease which would not have been expected under ordinary sanatorium treatment." The reports from Canada confirm the findings in the United States.

Hookworm Disease.—The Rockefeller Sanitary Commission for the Eradication of Hookworm has continued its very important work. During 1913 the annual report of the Commission for the previous year was published. The following statistical figures taken from the *Journal of the American Medical Association* (May 17, 1913) indicate the scope of the work accomplished:

> In Texas 83 counties have the infection and of the 884 counties in the other 10 states, infection has been found in 796. It is presumable that the remaining 88 counties will also be found infected when the work is extended to them. In all, 238,755 persons were treated at an expenditure per person treated of 77 cents, as compared with 140,378 treated in 1911 at an average expenditure per person of $1.05, and 14,443 treated in 1910 at an average expenditure per person of $4.66. In the three years, a total of 393,566 persons have been treated for hookworm.
>
> The total expenditure of the Commission for the year was $184,671.60, in addition to which the sum of $22,482.44 was spent by counties and $19,972.52 by states for fighting the hookworm, making a grand total of $227,126.56. The microscopic examinations made in 1912 numbered 326,951, as against 90,724 in 1911, and 14,789 in 1910.

International Health Commission.—During the year the Rockefeller Foundation established an International Health Commission, its objects being the prevention and cure of disease with the world as its field. Dr. Wickliffe Rose was appointed director, and the Commission is now engaged in work of relief and control of hookworm disease in infected countries. The Commission on taking up the work in any country will seek to coöperate in organizing agencies and directing them as follows: (1) to study the geographic distribution and the extent of the infection; (2) to cure all carriers of infection; and (3) to bring about sanitary conditions which will prevent soil pollution and consequent infection with hookworms.

Cancer.—Still another scourge has called forth a movement to combat it. This latest recruit in the public-health field is the American Society for the Control of Cancer. The new association is unique in that it is attacking a disease the cause of which is unknown and regarding which the ignorance is profound. Its specific task is the education of the public to the recognition of the significance of certain symptoms and the necessity for early diagnosis and operation. As in the case of many of its sister societies, the initiative has been taken by leading members of the medical profession in America, who have called to their side interested laymen to ensure the efficiency and success of the movement. It is understood that the pathology of cancer will not be regarded as falling within the field of the new society, but in addition to public education, careful studies will be made of the incidence and distribution of the disease as well as of the results of operative procedure. Ignorance of causation naturally renders the cancer problem more baffling than that of tuberculosis or the other preventable diseases which the civilized world is now engaged in fighting. For that reason there is, perhaps, the greater need of initial steps, and we welcome the new organization to the group whose activities give vigor to the great public-health movement of the day. (See also XXX, *Medicine and Surgery.*)

Infantile Paralysis.—Dr. Milton T. Rosenau reported in 1912 experiments which proved that monkeys could be infected with anterior poliomyelitis (infantile paralysis) through the bite of the stable fly (*Stomoxys calcitrans*), and this discovery was confirmed by Drs. J. F. Anderson and W. H. Frost of the U. S. Public Health Service (*A. Y. B.*, 1912, pp. 705-7, 717). Anderson and Frost in a further series of experiments were unable to duplicate their earlier work. The reason for failure to repeat the earlier experiments has not been explained. Anderson and Frost in discussing the subject (*Public Health Reports*, May 2, 1913) express the belief that it is doubtful if infection through the bites of this fly is the important factor in the spread of the disease and that epidemiological studies of poliomyelitis appear to

them to indicate that the disease is more likely transmitted largely through passive human virus carriers.

Drs. Simon Flexner and Hideyo Noguchi of the Rockefeller Institute report the successful cultivation of the virus of poliomyelitis (*Jour. of Exper. Medicine*, XVIII, 461). The organism was grown on a specially prepared medium, and after various cultures the growth of the organism is visible to the naked eye. The injection of these cultures into monkeys has caused the typical disease. (See XXX, *Pathology and Bacteriology*, and *Medicine*.)

Trachoma.—A special study of trachoma (an important communicable disease of the eyes) among American Indians was conducted during the year by Dr. J. W. Schereschewsky of the U. S. Public Health Service; 39,231 Indians were examined, and of these 8,940 (22.7 per cent) were found to be infected with this disease. The wide dissemination of this important disease amongst the Indians is accounted for by bad housing conditions and lack of personal hygiene. Dr. Schereschewsky considers the present widespread diffusion of trachoma among the Indians a serious menace to future white populations of Indian reservations (*Jour. Am. Med. Assoc.*, Sept. 27, 1913, p. 1113). Other important studies on trachoma have been conducted in Minnesota and Kentucky and reveal the existence of a great deal of this disease.

Fourth of July Injuries.—The wonderful results obtained through the advocacy and establishment of a safe and sane Fourth of July are well shown in the 1913 records. The results have been compiled by the *Journal of the American Medical Association* (Aug. 30, 1913, p. 679).

The total deaths due to accidents of various kinds (exclusive of tetanus) since 1905 are given in the following table:

Year	
1905	95
1906	83
1907	102
1908	108
1909	90
1910	64
1911	47
1912	35
1913	29

The cases of tetanus and blank-cartridge injuries for the past 11 years are given below:

Year	Tetanus Cases	Blank-Cartridge Injuries
1913	4	97
1912	7	75
1911	18	185
1910	72	450
1909	150	1,225
1908	76	942
1907	73	606
1906	89	979
1905	104	809
1904	105	905
1903	417	1,672

The greatest praise for the remarkable showing must be bestowed on the *Journal of the American Medical Association*, which has so vigorously fought for a safer celebration which would bring forward true patriotism and not leave in its wake an army of dead and maimed.

International Congress on School Hygiene.—The fourth International Congress on School Hygiene convened in Buffalo, Aug. 25-30, 1913. The total membership of the Congress was 2,181, the registration total in Buffalo 1,442, and the total attendance estimated at 3,000. The Congress was divided into the following sections: Section 1, Hygiene of School Buildings, Equipment, etc.; Section 2, Hygiene of School Administraton, Curriculum, and Schedule; Section 3, Supervision in Schools, Medical Hygiene, Sanitation.

Edward T. Brown in discussing the Congress in the *Survey* (Oct. 11, 1913) sums up the subjects covered by the various papers as follows:

Papers on the hygiene of buildings discussed the location, plan, construction, equipment, and maintenance of schools. School architecture, in its æsthetic and practical aspects; decoration, with a maximum of beauty and minimum of eyestrain; illumination, ventilation and plumbing, were considered, as well as school furniture, water supplies, lunch room problems, school grounds and similar topics.

A second group of papers, those on the hygiene of administration, studied the forces which make for health in country, village and city schools: people coming into contact with the school teachers, business officers, janitors, children; the schedule, its adaptedness to age and growth of the normal child, its provision for backward, delinquent, or crippled children, its hours and their

relation to school efficiency and school fatigue, its recesses and its vacations; its home-work requirements, its provision for athletics. Special plans were laid for the teaching of hygiene, when, what, how; for training teachers of hygiene on the preventive, educational, community, sex and other phases of the subject. Problems of heredity, first aid, and the relation of school to home were also included in these sessions.

A third group of papers discussed supervision, medical, sanitary, hygienic, not only in public schools but also in colleges, universities and professional schools. From every standpoint known to the science of school hygiene such questions were viewed as the relation of boards of health to educational authorities, the control of medical inspection by school or health authorities; training, equipment and hours of school physicians and school nurses, and their compensation; school clinics, their administration, scope, location; relation of inspection to the home, follow up for medical inspection; treatment of physical defects; and finally, the standardization of medical examinations and records, and statistical treatment of results.

The president of the Congress was Charles W. Eliot, President Emeritus of Harvard University, and the Secretary-General, Dr. Thomas A. Storey, Professor of Hygiene, College of the City of New York. The Congress was eminently successful and undoubtedly will go far toward improving the status of school hygiene in this country. The important papers are to be published, and when brought together will form a most valuable series for all interested in the subject.

Among the more important resolutions passed were the following:

Resolved, That it is the sense of the Fourth International Congress on School Hygiene that in each one of the United States such legislation should be made effective as would permit the establishment of systems of medical inspection and examination of school children, so that each school child in the United States would come under the hands of such health supervision.

Whereas, Nearly a million tuberculous children, or children strongly predisposed to tuberculosis, are attending our public schools, and there is hardly accommodation for 1,500 to receive instruction in the open air; and

Whereas, The Congress is convinced that the open-air school is one of the most powerful agents in the prevention and cure of tuberculosis in childhood, and it has been furthermore demonstrated that nearly all climatic conditions, providing the air is dust-free, lend themselves to the prevention of tuberculosis in the predisposed and the cure of the afflicted; and

Whereas, Statistics show that there are not nearly enough hospital and sanatorium accommodations for adults and children afflicted with pulmonary tuberculosis or children suffering with tuberculous joint or bone diseases; and

Whereas, It has been demonstrated in New York and other cities that discarded vessels lend themselves admirably to transformation into all-year-around hospitals and sanatoria for consumptive adults, sanatoria for children afflicted with joint and other types of tuberculosis, and into open air schools for tuberculous, anemic and nervous children; be it

Resolved, That the Fourth International Congress on School Hygiene petitions the United States Government to place at the disposal of the various states of the Union as many of the discarded battle ships and cruisers as possible to be anchored according to their size in rivers or at the seashore and to be utilized by the respective communities for open-air schools, sanatorium schools for children, or hospital sanatoria for adults.

Commission on Milk Standards.—The second report of the Commission on Milk Standards appointed by the New York Milk Committee (*A. Y. B.*, 1912, p. 636) was published in *Public Health Reports* for Aug. 22, 1913. The Commission divides milk into three grades, according to its sanitary status. An appendix to the report contains standard rules for the protection, handling and distribution of milk.

New York Public Health Commission.—On Jan. 10 Governor Sulzer of New York appointed a special commission consisting of Herman M. Biggs, M.D., Homer Folks, John A. Kingsbury, E. R. Baldwin, M.D., W. E. Milbank, M.D., Mary A. Nutting, John C. Otis, M.D., and Ansley Wilcox, to collect facts, receive suggestions and make recommendations as to changes in public-health laws and their administration in New York State. As a result of the report of this committee the Governor sent a special message to the legislature which resulted in the passage of an act which reorganizes the state Department of Health, and provides for a Public Health Council, consisting of a Commissioner of Health and six appointive members. This council has the power to establish a sanitary code which is to supersede all local ordinances, thus tending to standardize public-health practice throughout the state.

Among other provisions is the division of the state into sanitary districts, each under a supervisor respon-

sible to the Commissioner of Health. These sanitary supervisors are to aid the local health officers and promote in every way efficient health service. The act is of importance also in that it recognizes the necessity of public-health nurses. The law ensures tenure of office for health officers and also fixes the minimum salary which is to be paid. An additional law was also passed in relation to vital statistics which will greatly improve the records of the state.

New York State Commission on Ventilation.—At the suggestion of the New York Association for Improving the Condition of the Poor, a state Commission on Ventilation has been appointed "to examine and investigate the subject of ventilating systems in the public schools and other buildings of the state, and the proper installation of the same to the end that a thorough and effective system, which will assure an adequate supply of fresh air, under the best conditions, will be maintained." The work of the Commission is supported by a fund of $50,000, which is a part of a gift made by Mrs. Elizabeth Milbank Anderson to the New York Association for Improving the Condition of the Poor. The Commission as appointed by Governor Sulzer on June 25 includes: Prof. C. E. A. Winslow of the College of the City of New York, chairman; D. D. Kimball; Prof. F. S. Lee of Columbia University; Dr. James Alexander Miller; Prof. Earle B. Phelps of the United States Public Health Service; and Prof. E. L. Thorndike of Columbia University.

The Commission has equipped at the College of the City of New York experimental rooms in which detailed studies are to be made during the winter of 1913-14 of the effect of various atmospheric conditions upon bodily efficiency as measured by delicate physiological and psychological tests. These investigations will be extended and amplified during the season of 1914-15 in specially equipped school rooms for which provision has generously been made by the Board of Education of the city of New York in one of the new buildings to be constructed during 1914. In addition to these studies to be carried out directly by the Commission, plans have been made for coöperation in work already under way at the Massachusetts Institute of Technology in Boston, at the International Y. M. C. A. College in Springfield, Mass., and at the University of Minnesota. (See also XXVI, *Sanitary Chemistry.*)

Coöperation among Public-Health Organizations.—An important movement designed to bring about a closer coöperation among the various public-health organizations in the country has been inaugurated through the activities of the Council on Health and Public Instruction of the American Medical Association. A meeting of the executive secretaries of the most important organizations interested in public-health work, representatives of the U. S. Public Health Service, the Division of Vital Statistics and other Government bureaus, was held in New York on April 12. A committee of 15 was subsequently appointed to take up a consideration of the activities of all the more important public-health organizations, to determine whether or not serious duplication of effort was taking place, whether or not some fields of public-health work were neglected and just how a closer cooperation between the various health organizations might be of value. The subsequent reports of this committee will be awaited with interest.

American Public Health Association.—The annual meeting of the American Public Health Association was held in Colorado Springs on Sept. 9 to 13, and was well attended. A large number of interesting and important papers presented will be published in the *American Journal of Public Health* (289 Fourth Avenue, New York). Dr. William C. Woodward, Health Officer of the District of Columbia, was elected president. The 1914 meeting is to be held in Jacksonville, Fla., Nov. 24 to 28.

New York Association for Improving the Condition of the Poor.—A new Department of Social Welfare of this Association was established in April as the result of the munificence of Mrs. Elizabeth Milbank Anderson to foster preventive and constructive social measures for the welfare of the poor of the city of New York as distinguished from relief measures affecting particular individuals and

families; $500,000 was donated for this work. This Department is made up of the following bureaus, supporting in addition the Commission on Ventilation referred to above:

1. Bureau of Public Health and Hygiene. This Bureau maintains the Milbank Memorial Baths and is endeavoring to increase the public bathing facilities in the city of New York. It has made studies of public laundries with a view to starting one. It has also carried on an important study to establish the relation between flies and the spread of diarrheal diseases.

2. Bureau of Welfare of School Children. This Bureau has extended the work of the New York School Lunch Committee and is now serving hot lunches in 17 schools with a total registration of more than 25,000 children. These lunches are provided at the small charge of one cent a portion. The Bureau is also attempting to secure the extension of a thoroughgoing medical inspection of each school child in New York City; to secure additional clinical facilities for treating the physical defects discovered by medical examinations; to secure hygienic and sanitary conditions in school rooms and buildings; to secure more sanitary drinking facilities in the public schools; and through general educational measures of both children and parents to prevent the physical defects so common in children.

3. Bureau of Food Supply. The work of this Bureau so far has been confined with a view to determining whether some reorganization in the methods of distribution of food cannot be made to reduce its cost. It is also coöperating with the city authorities in preventing short weighing and also in securing adequate sanitation in places where food is offered for sale. It is planning to become a Bureau of Education with regard to scientific production, scientific buying, scientific storage and efficient handling of food supplies.

VITAL STATISTICS

Extension of the Registration Area.—The Bureau of the Census published during the year the mortality statistics for 1911, which were not available in time for insertion in the last issue of the YEAR BOOK (*A. Y. B.*, 1912, p. 723) and also the statistics for 1912.

The following table shows the growth of the registration area of the United States up to the close of the year 1912:

YEAR	Population			Deaths[1] in Registration Area	
	Continental United States	Registration Area		Number	Rate per 1,000 Population
		Number	Per cent.		
Census year 1879–1880	50,155,783	8,538,366	17.0	178,645	19.8
Census year 1889–1890	62,622,250	19,659,440	31.4	386,212	19.6
Census year 1899–1900	75,994,575	28,807,269	37.9	512,669	17.8
Calendar year 1900		30,765,618	40.5	539,939	17.6
Calendar year 1901	77,747,402	31,370,952	40.3	518,207	16.5
Calendar year 1902	79,365,396	32,029,815	40.4	508,640	15.9
Calendar year 1903	80,983,390	32,701,083	40.4	524,415	16.0
Calendar year 1904	82,601,384	33,345,163	40.4	551,354	16.5
Calendar year 1905	84,219,378	34,052,201	40.4	545,533	16.0
Calendar year 1906	85,837,372	41,983,419	48.9	658,105	15.7
Calendar year 1907	87,455,366	43,016,990	49.2	687,034	16.0
Calendar year 1908	89,073,360	46,789,913	52.5	691,574	14.8
Calendar year 1909	90,691,354	50,870,518	56.1	732,538	14.4
Calendar year 1910	92,309,348	53,843,896	58.3	805,412	15.0
Calendar year 1911	93,927,342	59,275,977	63.1	839,284	14.2
Calendar year 1912	95,545,336	60,427,133	63.2	838,251	13.9

[1] Exclusive of stillbirths.

ANNUAL CRUDE DEATH RATES PER 1,000 PERSONS LIVING, 1906–12

United States	Annual Average 1906–10	Death Rate from All Causes[1] per 1,000 population	
		1911	1912
Registration area	15.1	14.2	13.9
Registration states[2]	15.0	13.9	13.6
Urban districts	16.3	15.1	14.7
Rural districts	13.4	12.7	12.4
Registration cities	16.2	15.3	15.0
In non-registration states	15.9	16.9	16.6
California	13.9	13.7	14.2
Colorado	14.3	12.9	11.6
Connecticut	15.6	15.4	14.9
Indiana	13.0	12.9	13.0
Kentucky	[3]	13.2	12.9
Maine	16.2	16.1	15.5
Maryland	16.0	15.8	15.5
Massachusetts	16.1	15.3	15.0
Michigan	13.6	13.2	13.4
Minnesota	[4]	10.5	9.5
Missouri	[3]	13.1	12.6
Montana	[4]	10.2	10.1
New Hampshire	17.2	17.1	16.4
New Jersey	15.4	14.7	14.1
New York	16.4	15.5	15.0
North Carolina[5]	[4]	18.3	17.3
Ohio	[4]	13.1	13.4
Pennsylvania	15.5	14.2	14.0
Rhode Island	16.7	15.5	15.2
Utah	[4]	10.3	9.9
Vermont	16.1	15.8	15.2
Washington	[4]	8.9	7.9
Wisconsin	[4]	11.5	11.3
Registration cities of 100,000 population or over in 1910:			
Birmingham, Ala	[4]	18.2	17.4
Los Angeles, Cal	14.8	14.5	14.7
Oakland, Cal	15.4	12.7	12.8
San Francisco, Cal	16.1	15.2	15.6
Denver, Colo	17.5	15.5	14.2
Bridgeport, Conn	15.5	13.9	13.9
New Haven, Conn	17.3	16.7	16.5
Washington, D. C.	19.6	18.7	18.3
Atlanta, Ga	19.4	19.8	18.0
Chicago, Ill	14.9	14.5	14.8
Indianapolis, Ind	15.2	14.7	15.0
Louisville, Ky	17.4	16.1	16.4

United States	Annual Average 1906–10	Death Rate from All Causes[1] per 1,000 population	
		1911	1912
Registration cities of 100,000 population or over in 1910:			
New Orleans, La	21.7	20.4	20.1
Baltimore, Md	19.5	18.4	18.2
Boston, Mass	17.9	17.1	16.4
Cambridge, Mass	15.1	15.2	13.0
Fall River, Mass	19.7	17.4	16.2
Lowell, Mass	19.4	17.7	17.4
Worcester, Mass	17.1	15.7	16.2
Detroit, Mich	14.8	14.4	15.5
Grand Rapids, Mich[6]	13.3	13.6	13.0
Minneapolis, Minn	11.0	11.5	10.4
St. Paul, Minn	11.0	10.9	10.2
Kansas City, Mo	14.6	15.4	15.2
St. Louis, Mo	15.6	15.4	14.9
Omaha, Neb	13.8	14.3	13.2
Jersey City, N. J	17.7	15.8	14.0
Newark, N. J	17.2	14.8	14.3
Paterson, N. J	15.7	14.6	14.0
Albany, N. Y	18.6	20.4	20.1
Buffalo, N. Y	16.0	14.5	14.8
New York, N. Y	16.9	15.2	14.5
Bronx Borough	17.4	13.3	13.2
Brooklyn Borough	16.3	14.8	14.2
Manhattan Boro	17.4	16.0	14.9
Queens Borough	14.9	13.7	13.4
Richmond Boro	18.6	16.7	16.8
Rochester, N. Y.[6]	14.7	14.4	14.6
Syracuse, N. Y	15.2	14.3	15.2
Cincinnati, Ohio	18.1	16.5	16.6
Cleveland, Ohio	14.1	13.8	13.7
Columbus, Ohio	15.1	14.3	14.4
Dayton, Ohio	15.5	13.7	15.1
Toledo, Ohio	14.9	14.9	15.8
Portland, Ore	10.3	10.9	9.5
Philadelphia, Pa	17.7	16.6	15.3
Pittsburgh, Pa	18.0	14.9	15.9
Scranton, Pa.[6]	16.3	14.8	14.6
Providence, R. I	17.6	15.6	15.8
Memphis, Tenn.[6]	20.6	21.3	21.7
Nashville, Tenn	19.3	20.5	19.3
Richmond, Va	22.5	21.0	20.7
Seattle, Wash	9.8	8.8	8.1
Spokane, Wash	12.8	11.6	8.4
Milwaukee, Wis	13.7	11.9	13.0

[1] Exclusive of stillbirths.
[2] Includes District of Columbia.
[3] Non-registration.
[4] Figures not available for entire period.
[5] Includes only municipalities having a population of 1,000 or over in 1900.
[6] Rates too low, some deaths of infants being omitted.

The registration area for deaths is composed chiefly of those states in which the registration under state laws is sufficiently complete so that transcripts are obtained by the Bureau of the Census as the basis for the annual compilation of mortality statistics, but certain cities in non-

registration states are also included, the registration of deaths in these cities being conducted under local ordinances.

It will be seen in the table (p. 744) that the registration area for deaths now embraces nearly two-thirds (63.2 per cent.) of the total population of continental United States, but only about three-eighths of the land area of the country is represented.

For the year 1911, as reported in the YEAR BOOK for 1912 (p. 723) the states of Kentucky and Missouri were added to the registration area, and increased the percentage of the total population embraced from 58.3 in 1910 to 63.1. No new registration states were added for 1912, although efforts were made to secure the model registration law in several states, notably Illinois, Iowa and Tennessee. The area remained the same as in 1911, except for the inclusion of nine cities in Kansas as a result of the enforcement of the new state law. All Kansas cities with a population of 10,000 or over in 1910 are now included in the registration area. The total number of registration cities in non-registration states in 1912 was 47, more than half of which were in Kansas, Illinois and Virginia.

Death Rates.—The death rate of the registration area for 1911 (14.2 per 1,000) was the lowest recorded up to that time. In 1912 the rate fell to the new low record of 13.9. It will be noted from the table that there has been a more or less steady decrease in the death rate from the earlier to the later years. For 1910 the death rate (15) showed a slight increase over that for the preceding year (14.4). With this exception the rate for each of the last five years has been lower than that for the year preceding. The annual crude death rate per 1,000 population, for all registration states and cities of 100,000 population or over, for the years 1906-10, 1911, and 1912, are given in the table on the preceding page.

Standardized Death Rates.—It must be remembered in comparing crude death rates that such figures are affected by peculiarities of the distribution of population. Color, race, sex, and age, must be considered. An area having a large proportion of persons at the most healthful ages will normally show a lower general death rate than a population with larger proportions of very young children and of elderly persons. This caution is especially necessary in comparing the death rate for cities of 100,000 population. The rate shown for the large American cities are all low and without exception indicate a very favorable mortality. The high rates shown for Birmingham, Washington, Atlanta, New Orleans, Baltimore, and other cities of the South, are due to the large proportion of colored population, which under the conditions at present existing has practically always a higher mortality than the white population. The low death rates shown for Seattle, Portland and certain other cities are dependent to some extent on the favorable age distribution of the population.

With the report for 1911, the Bureau of the Census began the publication of "corrected" or "standardized" death rates, which permit an approximately exact comparison of the mortality of different localities. The method of obtaining "corrected" death rates is to select a standard population, definitely distributed into certain groups with respect to age, or age and sex; the specific death rates of any area as computed for the same groups are then applied to corresponding subdivisions of the standard population, the result being the number of deaths which would have occurred in each group of the standard population had its death rate been the same as that of the same group of the given area. The summation of the deaths that would have occurred in all the groups of the standard population gives the total number of deaths in the standard population corresponding to the observed specific death rates in the given area, and the division of this total by the standard population yields the corrected death rate. The Bureau of the Census has adopted as the standard of population the standard million of the Registrar-General of England and Wales, which is divided into 11 age groups for both sexes. The standardized death rate for the registration states in 1911

was 13.7, 0.2 lower than the crude rate. The corrections applied to the crude rates ranged from +0.9 for Washington to −3.2 for Vermont. For the registration cities over 100,000 population the standardized rates were higher than the crude rates in all but three cases; the corrections ranged from +3.1 for Birmingham to −0.7 for Albany. Preliminary results for 1912 are similar but the report for that year does not contain final standardized rates.

Causes of Death.—The death rates for certain important causes of death per 100,000 population in the registration area of the United States from 1901 to 1912 are given in the following table, compiled from the census report for 1912:

DEATH RATES FROM IMPORTANT CAUSES OF DEATH

	Annual Average, 1901 to 1905	Annual Average, 1906 to 1910	1909	1910	1911	1912
Typhoid fever	32.0	25.6	21.1	23.5	21.0	16.5
Malaria	4.8	2.6	2.3	2.2	3.0	3.1
Smallpox	3.4	0.2	0.2	0.4	0.2	0.3
Measles	7.0	10.0	12.3	9.6	10.8	9.0
Scarlet fever	11.6	10.6	11.4	11.6	8.8	6.7
Whooping cough	10.9	11.5	9.6	11.4	11.3	9.3
Diphtheria and croup	29.6	22.4	20.4	21.4	18.9	18.2
Influenza	19.9	16.4	13.1	14.4	15.7	10.3
Dysentery	8.6	6.5	5.6	6.4	5.2	4.4
Erysipelas	4.5	4.2	3.9	4.5	4.2	3.8
Rabies	0.1	0.2	0.1	0.1	0.1	0.1
Tetanus	3.5	2.7	2.7	2.5	2.3	2.2
Pellagra	.....	0.2	0.2	0.7	1.1	1.1
Tuberculosis, all forms	192.6	168.7	160.8	160.3	158.9	149.5
Tuberculosis of the lungs	170.7	146.8	139.3	136.0	132.5	124.8
Tuberculous meningitis	8.9	9.1	9.0	8.6	8.8	8.4
Syphilis	4.1	5.4	5.6	6.0	6.4	6.5
Cancer and other malignant tumors	67.9	72.6	73.8	76.2	74.3	77.0
Diabetes	11.5	13.7	13.8	14.9	14.9	15.0
Leukemia	1.2	1.5	1.6	1.6	1.6	1.7
Alcoholism (acute or chronic)	6.1	5.8	5.1	5.4	4.9	5.3
Meningitis (total)	31.7	19.4	15.4	14.2	12.3	11.5
Poliomyelitis (infantile paralysis)	.....	.....	1.1	2.7	1.8	1.9
Apoplexy	69.6	71.7	71.7	73.7	74.7	75.7
Paralysis	11.4	9.1	8.5	8.8	9.0	9.2
Epilepsy	4.4	4.2	4.1	4.2	3.9	4.1
Diseases of the circulatory system (total)	161.2	177.7	177.8	185.9	185.3	190.3
Organic disease of the heart	124.2	133.2	129.7	141.5	140.9	142.6
Diseases of the respiratory system (total)	220.5	188.1	178.6	187.3	168.1	165.8
Acute bronchitis	21.4	15.2	13.6	13.4	10.9	11.1
Chronic bronchitis	15.4	11.1	10.2	10.0	8.6	8.1
Bronchopneumonia	32.9	40.4	41.3	47.1	44.5	47.0
Pneumonia (total)	125.5	103.0	96.3	100.6	89.2	85.2
Pleurisy	4.6	4.1	4.1	4.0	3.6	3.3
Diseases of the digestive system (total)	195.2	193.2	180.6	194.6	166.3	158.2
Ulcer of the stomach	2.9	3.6	3.5	4.1	3.6	3.8
Diarrhea and enteritis (under 2 years)	89.0	96.2	87.8	100.8	77.4	70.3
Diarrhea and enteritis (over 2 years)	20.2	16.7	15.5	16.6	13.7	13.7
Appendicitis and typhlitis	11.0	11.2	11.3	11.4	11.6	11.6
Hernia, intestinal obstruction	13.0	12.9	12.6	12.4	11.9	11.9
Cirrhosis of the liver	14.4	14.3	13.8	13.9	14.0	13.5
Simple peritonitis (nonpuerperal)	10.8	6.1	5.1	4.5	4.0	3.2
Acute nephritis	9.6	10.1	9.9	10.5	10.0	10.6
Bright's disease	87.4	87.4	85.3	88.5	87.5	92.5
Puerperal septicemia	6.3	6.8	6.7	7.2	7.4	6.5
Suicide	13.9	16.0	16.5	16.0	16.2	16.0
Accident	84.9	86.0	80.2	84.3	84.6	82.4
Homicide	2.9	5.9	5.6	5.9	6.6	6.5

International Statistics.—In the following tables, taken from the latest *Annual Report* and *Annual Summary* of the Registrar-General of England and Wales, are given death rates in the world's principal cities, and birth and death rates in the principal countries.

ANNUAL CRUDE DEATH RATES IN PRINCIPAL COUNTRIES, PER 1,000 PERSONS, LIVING, 1881–1911

(Annual Report, Registrar-General of England and Wales, 1911)

Countries (arranged in order of rates in 1901–5)	Quinquennial Periods						Years		
	1881–1885	1886–1890	1891–1895	1896–1900	1901–1905	1906–1910	1909	1910	1911
Russia (European)	35.4	33.2	35.8	31.9	30.9	.....	.....	.....	.....
Chili	26.9	35.2	32.6	28.8	30.2	31.3	31.5	32.5	31.1
Ceylon	.....	25.1	28.3	27.0	26.7	30.8	31.0	27.3	34.8
Hungary	33.1	32.1	31.8	27.9	26.4	25.0	25.6	23.6	25.1
Spain	32.6	30.9	30.1	28.8	26.0	24.3	24.0	23.3	23.2
Roumania	26.2	28.7	31.0	27.4	25.5	26.0	27.8	25.2	25.7
Austria	30.1	28.9	27.9	25.6	24.2	22.3	22.9	21.2	21.9
Jamaica	.....	23.5	22.0	22.1	22.6	24.4	21.7	23.1	22.1
Bulgaria	17.7	18.9	27.8	23.9	22.5	.....	26.6	.....	.....
Servia	24.5	25.9	28.9	24.8	22.4	.....	29.3	22.1	21.8
Italy	27.3	27.2	25.5	22.9	21.9	21.0	21.5	19.6	21.4
Japan	.....	20.6	21.1	20.7	20.9	.....	22.0	.....	.....
German Empire	25.3	24.4	23.3	21.2	19.9	.....	17.2	16.2	17.3
France	22.2	22.0	22.3	20.7	19.6	19.2	19.3	17.9	19.6
Prussia	25.4	24.0	22.8	21.0	19.6	17.3	17.0	16.0	17.2
Finland	22.2	20.0	20.5	19.0	18.0	17.4	16.7	16.6	16.5
Ireland	18.0	17.9	18.5	18.1	17.6	17.3	17.1	17.1	16.5
Switzerland	21.3	20.4	19.8	18.1	17.5	.....	16.1	17.1	.....
Belgium	20.6	20.2	20.1	18.1	17.0	.....	15.8	15.2	.....
Scotland	19.6	18.8	19.0	18.0	17.0	16.1	15.9	15.3	15.1
England and Wales	19.4	18.9	18.7	17.7	16.0	14.7	14.6	13.5	14.6
The Netherlands	21.4	20.5	19.6	17.2	16.0	14.3	13.7	13.6	14.5
Sweden	17.5	16.4	16.6	16.1	15.5	14.3	13.7	14.0	13.8
Denmark	18.4	18.7	18.6	16.4	14.8	13.7	13.2	12.9	13.6
Norway	17.2	17.0	16.8	15.6	14.5	13.8	13.4	13.5	13.2
Ontario, Province of	11.4	11.0	10.6	11.6	13.0	14.0	14.6	14.0	12.6
Australian Commonwealth	15.7	14.8	13.3	12.7	11.7	10.7	10.3	10.4	10.7
New Zealand	10.9	9.9	10.1	9.6	9.9	9.7	9.2	9.7	9.3

ANNUAL BIRTH RATES IN PRINCIPAL COUNTRIES, PER 1,000 PERSONS LIVING 1881–1911

(Annual Report, Registrar-General of England and Wales, 1911)

Countries (arranged in order of rates in 1901–5)	Quinquennial Periods						Years		
	1881–1885	1886–1890	1891–1895	1896–1900	1901–1905	1906–1910	1909	1910	1911
Russia (European)	49.1	48.2	48.2	49.3	47.7	.....	.....	.....	.....
Bulgaria	37.2	35.9	37.5	41.0	40.6	.....	40.6	.....	.....
Roumania	41.8	40.9	41.0	40.2	39.4	40.3	41.7	39.8	43.0
Jamaica	.....	36.8	38.6	38.9	39.0	37.5	37.8	38.6	39.0
Ceylon	.....	30.3	31.7	37.2	38.8	37.5	37.5	39.0	37.9
Servia	46.3	43.7	43.3	40.1	38.7	.....	36.5	38.5	36.2
Hungary	44.6	43.7	41.7	39.4	37.4	36.7	37.7	35.7	35.0
Chili	39.1	35.5	37.0	35.0	36.4	38.3	38.8	38.4	38.5
Austria	38.2	37.8	37.4	37.3	35.6	33.6	33.4	32.5	31.4
Spain	36.4	36.0	35.3	34.3	35.3	33.6	33.5	33.1	31.2
Prussia	37.4	37.3	36.9	36.5	34.8	32.3	31.7	30.5	29.4
German Empire	37.0	36.5	36.3	36.0	34.3	.....	31.1	29.9	28.6
Italy	38.0	37.5	36.0	34.0	32.6	32.4	32.4	32.9	31.5
Japan	.....	28.5	28.6	31.1	31.7	.....	34.2	.....	.....
The Netherlands	34.8	33.6	32.9	32.1	31.5	29.6	29.1	28.6	27.8
Finland	35.5	34.5	31.8	32.6	31.3	31.0	31.3	30.2	29.1
Scotland	33.3	31.4	30.5	30.0	29.2	27.6	27.3	26.2	25.6
Denmark	32.4	31.4	30.4	30.0	29.0	28.2	28.2	27.5	26.8
Norway	31.2	30.8	30.2	30.1	28.6	26.3	26.1	26.1	25.9
England and Wales	33.5	31.4	30.5	29.3	28.2	26.2	25.8	25.1	24.4
Switzerland	28.6	27.5	27.7	28.5	27.8	.....	25.5	25.0	.....
Belgium	30.7	29.3	28.9	28.9	27.7	.....	23.7	23.7	.....
New Zealand	36.3	31.2	27.7	25.7	26.6	27.1	27.3	26.2	26.0
Australian Commonwealth	35.2	35.2	32.4	27.7	26.4	26.7	26.7	26.7	27.2
Sweden	29.4	28.8	27.4	26.9	26.1	25.5	25.6	24.8	23.8
Ireland	23.9	22.8	23.0	23.3	23.1	23.4	23.5	23.3	23.2
Ontario, Province of	22.4	22.0	19.9	20.1	21.8	23.7	24.3	24.9	21.7
France	24.7	23.1	22.3	21.9	21.2	19.9	19.6	19.7	18.7

ANNUAL CRUDE DEATH RATES PER 1,000 PERSONS LIVING, WORLD'S PRINCIPAL CITIES, 1881–1912

(Annual Summary, Registrar-General of England and Wales, 1912)

Cities	1881–1885	1886–1890	1891–1895	1896–1900	1901–1905	1906–1910	1910	1911	1912	Decrease per cent. between 1881–5 and 1906–10
London	20.9	19.7	19.8	18.5	16.4	14.9	13.7	15.0	13.6	28.7
Edinburgh	19.6	19.7	19.7	19.0	17.8	16.8	15.7	16.0	15.7	14.3
Glasgow	26.0	23.1	22.8	21.2	20.1	19.0	17.1	17.7	17.6	26.9
Dublin (reg. area)	27.5	26.6	25.7	25.6	23.3	21.6	19.9	21.4	20.5	21.5
Belfast	24.7	24.4	25.1	23.4	20.8	19.6	18.6	17.2	18.1	20.6
Melbourne	20.1	21.0	16.7	15.5	14.0	12.9	12.7	12.8	14.0	35.8
Sydney	20.8	17.9	14.3	12.1	11.4	10.5	10.4	10.9	11.4	49.5
Montreal	31.0	26.7	25.3	23.1	23.3	22.6	22.4	.....	20.0	27.1
Toronto	20.7	20.1	15.2	14.6	16.3	18.2	21.3	.....	.....	12.1
Paris	24.4	22.9	21.1	19.1	17.9	17.5	16.7	17.2	16.3	28.3
Brussels	23.4	21.2	20.2	17.2	15.2	14.1	13.6	13.9	13.5	39.7
Amsterdam	25.1	22.4	19.2	16.7	14.7	13.1	12.2	12.4	11.2	47.8
Rotterdam	24.2	22.0	20.8	18.0	15.6	13.4	12.2	12.1	11.3	44.6
The Hague	23.3	20.8	18.7	16.2	14.4	13.2	12.5	12.7	10.9	43.3
Copenhagen	22.3	22.3	20.2	17.6	16.1	15.1	14.2	14.8	14.1	32.3
Stockholm	24.3	21.2	20.0	18.2	16.1	15.1	14.6	12.7	14.2	37.0
Christiania	19.9	22.3	19.0	17.5	15.3	12.9	11.9	13.5	13.4	35.2
St. Petersburg	32.9	27.0	25.6	25.8	23.7	25.6	24.1	20.8	21.9	22.2
Moscow	33.3	33.6	29.2	28.7	26.6	27.6	26.9	27.2	24.3	17.1
Berlin	26.6	22.5	20.5	18.1	17.0	15.5	14.7	15.6	14.4	41.7
Hamburg	25.2	25.3	24.2	17.3	16.3	14.8	14.2	14.7	13.6	41.3
Dresden	25.0	22.1	20.6	19.0	17.6	14.7	13.8	14.6	13.1	41.2
Breslau	31.3	28.8	27.8	26.3	23.7	20.8	19.1	19.5	18.4	33.5
Munich	30.4	28.3	25.8	23.9	21.0	17.5	15.9	15.8	14.7	42.4
Vienna	28.2	25.1	24.1	21.1	19.1	17.1	16.6	16.4	15.4	39.4
Prague	28.9	26.1	22.7	19.8	18.6	16.1	15.5	16.3	15.8	44.3
Budapest	31.5	30.8	25.5	21.6	19.8	19.5	18.4	19.4	18.5	38.1
Trieste	31.1	30.4	29.8	27.5	26.3	24.5	22.9	24.0	21.1	21.2
Milan	30.3	30.4	27.4	23.2	22.1	19.3	17.1	20.1	15.8	36.3
Turin	27.2	23.5	21.6	19.8	19.6	17.5	14.9	.....	12.9	35.7
Venice	29.1	30.2	27.8	25.8	24.2	22.9	19.0	22.8	20.9	21.3
Bucarest	.....	.....	.....	24.6	23.3	24.7	25.6	26.1	.....	.....
New York	27.5	25.8	24.6	20.3	18.9	17.0	16.0	15.1	14.1	38.2
Chicago	21.5	19.5	20.6	15.2	14.2	14.5	15.1	14.6	14.8	32.6
Philadelphia	22.3	20.6	21.1	19.2	18.1	.....	.....	16.5	15.1	.....
Boston	24.7	23.4	23.5	21.1	18.8	17.9	17.2	17.1	16.2	27.5
Rio de Janeiro	30.5	33.1	38.2	29.2	26.3	22.5	20.6	20.4	21.3	26.2

XXXI. RELIGION AND RELIGIOUS ORGANIZATIONS

H. K. Carroll

CHRISTIAN DENOMINATIONS

BAPTIST

The Northern Baptist Convention.—The annual meeting of this body, representing the Baptists in the northern states, convened on May 19 in Detroit, and remained in session seven days. Over 1,600 delegates, besides many visitors, were in attendance. The convention, which is incorporated, has been in operation five years. It was projected for the purpose of unifying denominational forces and interests, and it is said to have approved itself as "a medium through which the denomination can speak as a unit and express its sentiment and desire." It has no legislative authority and may not in any way interfere in the control of the individual churches, which have complete autonomy and manage their own affairs in accordance with the spirit and plan of Baptist fraternity, coöperating freely with one another in all matters of denominational concern. The purpose of the convention is to secure coöperation and efficiency in the work of the missionary and benevolent societies. The convention and the societies have practically the same membership, and the societies have a set of by-laws in common. A finance committee appointed by the convention passes upon the estimates of the several societies and coördinates these into a unified budget, which represents the askings of the societies for the ensuing year. The convention at Detroit considered proposed amendments in its by-laws and adopted a plan for voting by states when desired. Measures to increase the influence of the state conventions were also recommended. During the session, the two Baptist women's foreign missionary societies, one having its center in Boston, the other with its headquarters in Chicago, were united and became the Woman's American Baptist Foreign Mission Society. The apportionment committee reported that the campaign of the previous year for $3,000,000 for all denominational benevolences had resulted in an increase of $250,000 in the income and recommended that the objective to be sought the present year be $5.20 per member. The convention reëlected Henry Bond, Brattleboro, Vt., as president and F. Wayland Ayer, Camden, N. J., as corresponding secretary. A committee of seven was provided for, to serve two years, whose duty it shall be to consider the desirability and possibility of centralizing all the denominational societies in one place and advise the denomination what is the best course to pursue. The convention represents the Baptists in 34 states, with more than 12,000 churches. Resolutions were adopted concerning prison reform, temperance, child labor, and recommending that a day be observed as annual denominational day in the month of March, to acquaint Baptists and others with Baptist history, principles, and achievements.

The Southern Baptist Convention.—The Baptists in the South have held an annual convention, with representatives from the various states in that section, for nearly 60 years. The convention of May, 1913, in St. Louis, Mo., was the fifty-eighth. Rev. E. C. Dargan was reëlected president and Drs. Burrows and Gregory, secretaries. The reports of the various denominational boards showed an advance, ex-

cept that of foreign missions, in the income of which a decrease of $40,000 had occurred, increasing the debt to $76,000. A warm discussion arose over a petition from the General Association of Kentucky, asking the convention to consider the matter of withdrawing from the International Committee's Sunday School lessons, and providing denominational lessons. This was strongly opposed and it was urged that Baptists are under every obligation to coöperate with other Christian denominations. It was pointed out that the International Lesson Committee simply selects the texts and each denomination prepares its own lessons.

The Free Baptists.—The thirty-fifth triennial session of the General Conference of this body was held in Ocean Park, Me., in July. The Conference approved the steps thus far taken for union with the Northern Baptist Convention; but the conference will continue its legal existence and meet every fourth year hereafter. Of denominational funds $147,587 has been transferred from the treasury of the Conference to the treasuries of the Home and Foreign Mission Societies of the Northern Baptist Convention. Dr. Joseph Mauck was reëlected president.

Statistics of the Denomination.—Statistics covering both the Northern and Southern Baptist Conventions, the National Baptist (Colored), and, in part, the Free Baptists, the union of many congregations having been effected, show that at the end of 1912 there were 5,529,573 members, indicating an increase of 75,375 during the year. There were 50,188 churches, an increase of 408, and 36,027 ordained ministers, an increase of 852. The contributions for church expenses were $20,561,041, an increase of $508,578. Including benevolences and all purposes the income of the year reached an aggregate of $27,078,231.

Second European Baptist Congress.—This body, representing more than six hundred thousand Baptists in the various countries of Europe, held its second session in Stockholm, Sweden, July 19-24. Nearly 1,100 delegates were present from Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Great Britain, Holland, Ireland, Italy, Norway, Portugal, Rumania, Russia, Spain, Sweden, and Switzerland. Russia reported 43,955 Baptists. In August it was announced that the Government of Russia might, through the Holy Synod of the Russian Church, proclaim the Baptists "as a sect especially harmful to the state." This would carry with it deprivation of the right of public worship and of the privilege of registration. The threatened action was supposed to be due to the refusal of Baptist citizens to take the military oath. It will be remembered that the Baptist World Alliance in Philadelphia in 1911 raised $70,000 for a Baptist educational institution in St. Petersburg, and much was said concerning persecution of Baptists in previous years (*A. Y. B.*, 1911, p. 741; 1912, p. 728).

CONGREGATIONALIST

The National Congregational Council.—This body has been meeting triennialy since it was organized a generation ago. It has had, however, no administrative or executive functions of importance until the present time. Convinced that the Council as representative of all the churches of the denomination should have a vote in directing denominational work, the Council of 1910 appointed a committee to prepare a constitution for consideration and adoption. This report, presented unanimously, first to the denomination at large and then to the National Council at its regular triennial meeting in October, 1913, in Kansas City, Mo., is commonly spoken of as the "new polity," although it makes no change in the system as applied to local churches, which it confirms in their autonomy and "freedom from all ecclesiastical control." Under the moderatorship of Dr. Charles R. Brown, of Yale University, the Council took up the report and after a discussion of three hours, in which a few amendments were proposed and rejected, adopted it with only one dissenting vote.

The new constitution affirms the allegiance of the churches to the faith of the fathers as expressed in the historic creeds of the communion and their loyalty to the basic principles

of our polity. It sets forth a succinct statement of belief in non-theological terms, recognizing the Fatherhood of God, the Sonship and Lordship of Christ the Saviour, and the revealing, renewing, and comforting power of the Holy Spirit. It holds to the Gospel for all mankind and promises to work and pray for "the transformation of the world into the kingdom of God." The constitution provides for one society, the American Board, to conduct the foreign mission work of the denomination; and for the continuance of the existing home organizations, the Congregational Home Missionary and American Missionary, the Church Building, Education, Sunday School, Publishing, and Ministerial Relief societies. The members of the Council are constituted members of these societies, each of which chooses a certain number in addition as corporate members. A Commission on Missions, to consist of 14 members elected by the Council and one each by the several societies, is provided for, its office being to "prevent duplication of missionary activities, to effect all possible economies in administration, and to seek to correlate the work of the several societies so as to secure the maximum of efficiency and the minimum of expense." The Council is to meet every two, instead of every three, years, and a provisional committee is to represent it *ad interim*. The moderator is to have representative, but not authoritative functions, and the secretary is to have certain prescribed duties and is to be available for advice and help in matters of polity and constructive organization.

The Council commended the efforts of the Protestant Episcopal Church to secure a World Conference of Faith and Order, and adopted resolutions approving a campaign for national prohibition, appointing a committee for observance of the centenary of the American Bible Society in 1916, constituting committees on the moral and religious welfare of enlisted men and on moral and religious education, commending the cause of international peace, and creating committees on temperance, evangelism, and public worship. A Commission on Social Service, to take over the present work of the Brotherhood, was authorized with an executive secretary and a budget. The Council also passed resolutions protesting against negro segregation and discrimination in the Government service.

Statistics of the Denomination.—The number of delegates attending, including those of societies and educational institutions, was 543, the largest in the history of the Council. Of these 217 were from west of the Mississippi and 326 from the east. The statistical report showed 743,026 members at the close of 1912, an increase of 4,285; 6,064 churches, a gain of 16; 717,230 Sunday school members; and 124,654 in young people's societies. The total amount contributed to benevolences was $2,363,584 and to home expenditures, $9,307,618.

DISCIPLES OF CHRIST

The New Constitution.—This denomination has been discussing with sharp division of sentiment the new constitution, adopted in 1912 by the Louisville convention for the "unification of their various missionary, educational, and benevolent organizations and a more general fellowship of the churches" (*A. Y. B.*, 1912, p. 729). This constitution provided for a representative convention in place of the annual gathering in which all ministers and members of the denomination who wished to attend had place. This departure from what was regarded as a precedent hallowed by long usage was deprecated, and opposition to it did not subside after its adoption.

The General Convention.—The second convention under the new constitution was held in Toronto, Canada, in October. The instrument was again approved; but the presiding officer ruled that, though delegates duly appointed had come, all present might vote on all questions. A committee reported a resolution stating that the new constitution does not contemplate a "species of ecclesiasticism contrary to the history, spirit, and aims" of the churches, disclaiming any desire or intention that the convention should exercise any control over the local churches or mandatory authority over congregations or denominational

societies, and defining its powers as "purely advisory." This was adopted and gave satisfaction to the opposition. The convention, which was attended by some 3,000 persons, gave attention to missionary, educational, and other denominational interests, one session being devoted to Christian unity, for which the denomination has always stood.

Statistics of the Denomination.—According to the statistics announced for 1912, the Disciples of Christ number 5,954 ministers, 9,818 churches, and 1,340,887 communicants. There is another body, known as the Churches of Christ, the result of a division some years ago, reporting about 156,000 in 1906.

LUTHERAN

The General Synod and the General Council.—The General Synod and the General Council, representing the oldest and second oldest Lutheran general bodies in this country, held their biennial sessions in 1913, the former at Atchison, Kan., the latter in Toledo, O. The General Synod decided as a part of the celebration for the four-hundredth anniversary of the Reformation in 1917 to raise a fund of $1,000,000 for educational work. The General Council emphasized the importance of maintaining true confessional Lutheranism and adopted resolutions favoring arbitration between all Lutheran bodies on interferences or differences in practices between Lutheran synods. The purpose is to bring about a meeting of the chief officers of various Lutheran bodies in conference to inquire whether there is not some way to a better understanding and a closer approach. The General Council believes that it would be a worthy achievement "if the heads of all Lutheran bodies and independent synods could confer once a year to ascertain what coöperation or even fellowship, if any, might be possible between all without violation of doctrine. *The Lutheran*, an organ of the General Council, declares that body "will hail with satisfaction any movement which will tend to bring together all Lutherans in this country in a closer bond of true unity in the faith and in the sacraments."

The General Conference.—The fourteenth biennial General Conference of Lutherans of Europe and America was held in Nurnberg, Germany, in September. Its purpose is to perpetuate a positive and constructive confessional theology and to maintain a bond of union between Lutherans of different nationalities. Prof. Ludwig Ihmeis of Leipzig was reëlected president, and Bishop Von Scheele of Sweden, vice-president. The Conference, consisting of more than 1,200 delegates, discussed confessional Lutheranism, the special problems confronting the Church, and methods and results. The sentiment expressed was that the Church must not be blamed for not holding intellectual eclectics, because she would have to sacrifice essentials in order to do so. Some of the religious movements outside the Church were held to be not genuine in religious character. Emphasis was placed on the preaching of doctrine without making dogmatics prominent, and the careful training of the young. Foreign and home missions were fully considered. It was agreed that Islam is not gaining, but rather losing wherever it has to face Christianity and western ideas. The question of Church and State in Germany received some attention, and it was the general feeling that separation would be of benefit to the church, but no action in favor of disestablishment was suggested.

Statistics of Lutheran Bodies.—The General Synod reports nearly 317,000 communicants, with 1,367 ministers and 1,796 churches; the General Council 473,295 communicants, with 1,550 ministers and 2,347 churches; and the Synodical Conference 807,693 communicants, with 2,885 ministers and 3,569 churches. In the aggregate there are 9,038 ministers, 14,566 churches, and 2,353,702 communicants. In Canada immigration is adding large numbers to the Lutheran communion. The increase since 1901 has been from 92,524 to 229,864.

METHODIST

Proposed Union of the Methodist Protestant and United Brethren Churches.—In 1912 the General Conference of the former body authorized

its commission on organic union to enter into negotiations for union with a similar commission of the United Brethren in Christ. The two commissions agreed upon a plan which was reported to the General Conference of the United Brethren held in Decatur, Ill., in May, 1913. The plan was approved without a dissenting vote and it was ordered that it be submitted to the annual conferences for approval; that if approved by an affirmative vote of three-fourths of the annual conferences, it be submitted to the lay members for their approval; and if approved by a three-fourths' vote of the laity, the General Conference be called to meet in special session for final approval and ratification. It was further resolved to federate immediately "in all possible activities and occasions with the Methodist Protestant Church." The plan provides that the two churches when united shall be called the United Protestant Church, for a quadrennial General Conference, for bishops or general superintendents, for annual conferences as at present, and for the continuance of the denominational societies until a General Conference of the united church shall otherwise direct. The annual conferences of the United Brethren are generally heartily approving the plan, the minorities being small in nearly all cases, and only three conferences giving majorities against it. Conferences of the Methodist Protestant Church have also considered the project favorably, seven voting unanimously for it, but the ministers and lay representatives of the Maryland Conference, the oldest, largest, and most influential, at a special convention rejected the plan by a large vote, because the proposed name would eliminate the body from the ecclesiastical family to which it belongs and because the proposed declaration of faith and the constitution are unsatisfactory.

Other business transacted by the United Brethren General Conference was the election of Rev. A. T. Howard, missionary in Japan, as bishop over all the foreign missions, the reelection of three bishops, and the election of two additional bishops, Dr. H. H. Fout and Dr. J. C. Kephart. A commission of finance to supervise the financial affairs of all departments of the Church was appointed.

Denominational Status of Vanderbilt University.—A serious contest between the Board of Trustees of Vanderbilt University, Nashville, Tenn., and the Board of Bishops of the Methodist Episcopal Church, South, over a proposed gift by Andrew Carnegie of a million dollars to the medical department, has been in progress. The point at issue is whether the General Conference has visitorial rights. The Board of Bishops, representing the General Conference, interposed a veto to the acceptance of the gift, on the ground that the conditions on which it was offered involve practically a denial of denominational control. The Court of Chancery has affirmed the right of the General Conference to exercise such control, but an appeal has been taken to the Supreme Court. Meanwhile, the church press, which editorially supports the view of the bishops, is filled with articles for and against the attitude of the university Board of Trustees.

The British Wesleyan Conference, in August, refused to disapprove of Professor Jackson as a teacher in Didsbury Theological College on heresy charges. It appointed a committee to gather facts and figures relating to a union of the various Methodist bodies of England.

Statistics of Methodist Bodies.—The Methodist Episcopal Church reported at the end of 1912, 18,714 ministers, 28,433 churches, and 3,293,526 communicants; the Methodist Episcopal Church, South, 6,970 ministers, 15,727 churches, and 1,919,873 communicants. The changes in other Methodist bodies were unimportant.

PRESBYTERIAN

The Presbyterian Alliance. — The various Presbyterian and Reformed churches in the world, including 10 of the dozen and a half branches in the United States and Canada, were among the first of denominational groups of similar name and history to form a world alliance, known as the "Alliance of the Reformed Churches throughout the world, holding the Presbyterian system." In all there are 30 branches which participate by

representatives in the Councils. The tenth Council met in Aberdeen, Scotland, in June; it consisted of about 300 delegates from the six continents and its sessions covered nine days. The Council, which does not assume any legislative, executive, administrative, or judicial authority, discussed topics of common interest, such as the authority of the Scriptures, the authority of Christ, and the authority of Christian experience. Both the conservative and the advanced view found expression, the former putting emphasis upon the objective, and the latter upon the subjective element. The ministry, the Sunday school, missions, and general church work found place in the programme. The moderator, David James Burrell, of the Collegiate Reformed Church, New York, dwelt in his presidential address on the importance of sounding the evangelistic note in preaching and in church work. The next meeting of the Council is appointed for 1917 in Pittsburgh.

Presbyterian Union Movements.—The plan for the union of the Northern Presbyterian Church and the Reformed Church (German) (*A. Y. B.*, 1911, p. 742) has not yet been carried to a final issue, but there does not appear to be a unanimity of feeling in its favor in the latter body.

The prospect of the Presbyterian, Methodist, and Congregational Churches in Canada becoming one (*A. Y. B.*, 1910, p. 727; 1911, p. 744; 1912, p. 740) was clouded in 1912 by the announced fact that 30 per cent. of the Presbyterian constituency had voted against it. The Presbyterian General Assembly, held in Toronto in June, 1913, had before it resolutions reported by a majority of 50 to 11 of a large committee, appointed the previous year, proposing that the other two denominations be asked to continue the negotiations, as the Presbyterian Assembly feels the desirability of practically unanimous action of all its own members, and recommending that the Assembly's union committee be continued and that further amendments of the plan of union be invited from presbyteries, sessions, and individuals. The Assembly amended the report by adding the words, "in the hope that the union may be accomplished with no unnecessary delay," and adopted it.

The committees on union appointed in 1912 by the General Assemblies of the Southern and United Presbyterian Churches succeeded in formulating a plan of union of these two denominations, which was presented to the Assembly of each in 1913, with the suggestion that it be simply accepted, that no discussion be had upon its merits, and that it be laid over for discussion, amendment, and action in 1914. Each Assembly voted unanimously to accept the suggestion. Meantime the churches are encouraged to give careful consideration to the plan. It is not submitted to the presbyteries for constitutional action, though they are free to discuss it. The basis of union, as proposed, recognizes the Westminster Standards held by both churches as the authoritative doctrinal statements of the united body, words being added to bring out clearly the doctrines of the Trinity, the authority of the Scriptures, the virgin birth, and reign of Christ and His atonement. The difference between the two bodies as to psalms and hymns, the United Church allowing no hymns to be sung in public worship, except such as are taken from the Bible, while the Southern Church has no such limitation, is met by allowing each individual church entire liberty in the matter. Those churches which use only the Psalter will continue the present practice, if they so desire; and those churches whose singing books include hymns of non-Scriptural origin will have the same freedom as at present. The name proposed for the merged denominations is United Presbyterian Church.

By a concerted movement intended to promote fraternal feeling, manifest the spirit of unity, and give opportunity for a closer acquaintance, the General Assemblies of the Northern, Southern, and United Presbyterian Churches met simultaneously in May in Atlanta, Ga. An unofficial conference of commissioners of these three bodies, together with a representative of the Associate Reformed Synod of the South, was held, the Southern body assenting to the proposal with the understanding that the Conference

should not discuss the subject of organic union.

Negotiations have been in progress for years looking to the union of the Established and United Free Churches of Scotland, the chief point to be met being the former's relation to the state. In 1912 it seemed possible that the "Auld Kirk" might be willing, for the sake of securing one large dominant denomination where there are now two, to ask for disestablishment, but not for disendowment (*A. Y. B.*, 1912, p. 734). At the meetings of the two Assemblies in May, 1913, the subject was the chief one under consideration. The committee report to the Assembly of the Established Church expressed the conviction that it had become the duty of that body to take action to satisfy the high ideals of freedom held by the United Free Church and that to this end the Church of Scotland should secure from Parliament a modification and readjustment of its relation to the State, so as to end beyond peradventure possible control by the civil power over the affairs of the Church. A new constitution embodying this principle was proposed, and it was recommended that Parliament be asked to recognize it and to repeal all laws inconsistent with it. This proposed action was heartily approved by the Assembly. The measure proposed seemed to be quite satisfactory to the United Free Church Assembly, which felt that it could not ask for less, as freedom from state connection has been from the beginning a fundamental principle in both the Free and the United Church. It will probably be several years, however, before the proposed union is consummated. The Established Church reported a decrease of communicants for the first time in many years, and the United Free Church had an unusually small gain.

Northern Presbyterian Church.—The General Assembly of the Northern Presbyterian Church has one small church in Atlanta, Ga., where its sessions were held in May. Dr. John T. Stone of Chicago was elected moderator. An investigation conducted by the Executive Commission into the affairs of the Board of Home Missions, which had caused some anxiety and restiveness, was concluded with a report declaring that there had been "no misappropriation of funds, no malfeasance in office, no question of the integrity or efficiency of the officers, and no usurpation of authority." The report recommended that the country life department, intended to be helpful to rural churches, be continued. The labor bureau has already been turned over to the New York Presbytery. The direction of the Assembly in 1912 that $500,000 of the Kennedy fund for church erection be used as a loan fund to help needy churches, had not, it appeared, been carried out by the Board of Church Erection, the reason given being that there was a legal difficulty. The Assembly, by a vote of more than two-thirds, renewed the order, and Secretary McMillan, interpreting the action as a vote of lack of confidence, resigned. The committee appointed two years ago to inquire and report concerning the relations of the church and the Union Theological Seminary, New York, presented its conclusions in three reports, a majority report signed by six, and two minority reports signed by two and one respectively. The majority report asked that the committee be continued and stated that it had requested the Seminary directors to make larger provision for the instruction of Presbyterian candidates in doctrine and church government and the directors had agreed to provide special lectures. The first minority report recommended that the committee be discontinued, since there was no organic relation of the Seminary with the Church and none could be expected. The second minority report charged the Seminary with a breach of faith in severing its alliance with the Church. The Seminary was represented in the Assembly by its president, Dr. Brown, who declared its loyalty to the doctrine of the deity of Christ, and to the Bible as the "fundamental charter of our faith," and other important doctrines. He explained that its students came to it from eastern universities "saturated with modern philosophic doubt," and it did what it could to settle their faith. The Assembly seemed ready to drop the whole matter, which has caused much dissension for years; but it finally committed

the three reports to a new committee of seven, to report in 1914.

The statistics of the Church for 1912 show an increase of 136 ministers, 60 churches, and 35,814 communicants. The number added on confession of faith, 88,808, was the largest in the history of the Church. Adding to the net increase, as above, the number of deaths, 16,250, it would appear that there were lost to the Church otherwise than by death, 36,744 during the year. The total contributions for all purposes were $26,298,808, an increase of about $500,000. The aggregate of communicants, including foreign mission fields, is 1,415,872.

The Cumberland Presbyterians.—The outcome of the suit in the U. S. District Court for possession of the property of the Cumberland Presbyterian Publishing House, in Nashville, Tenn., was a decision in favor of the United Church. The Cumberland Presbyterians who refused to enter the union of 1906 were especially numerous in Tennessee, and sought to retain the former publishing headquarters of their Church (*A. Y. B.*, 1910, p. 726). They decided to turn over the property and not to prosecute an appeal. They will receive all church and Sunday-school literature in stock pertaining to the Cumberland Church and possession of the denominational organ. A decision in a U. S. District Court, covering all their church property in Missouri, also went against them and they have appealed to the U. S. Supreme Court. How large the Cumberland body now is cannot be accurately determined. It appears that the number of communicants actually reported for 1912 was between 70,000 and 75,000, but these returns, it is claimed, are far from complete.

The Southern Presbyterian Church.—This body, under the moderatorship of Dr. John S. Lyons, Louisville, Ky., accepted unanimously the report of the joint committee on union with the United Presbyterian Church (see "Presbyterian Union Movements," *supra*) and laid it over for action in 1914. The Assembly discussed and adopted by a vote of 119 to 64 a "brief popular statement" of doctrine, which is to be widely distributed, not as an authoritative standard nor to take the place of the Westminster Confession, but rather as a non-technical expression of the general faith of the Church. Other Presbyterian churches in the United States, England, and Scotland have similar declarations, indicating in a general way the sense in which particular doctrines of the Westminster instrument are received. It declares that the Scriptures *are* (not contain) the Word of God; that "God's electing grace has peopled heaven with a multitude no man can number and has never sent one soul to hell"; and that "all who die in infancy are regenerated and saved by Christ." This latter clause precludes the inference sometimes drawn from the article concerning elect infants that there are non-elect infants who are not saved. For several years the presbyteries have been voting on proposed amendments of this confessional statement, rejecting each. The amendment sent down in 1912, "all infants dying in infancy, being elect, are saved," was not approved, it appears. The new statement probably ends the agitation for change. The Assembly voted not to withdraw from the Federal Council of the Churches of Christ, explanations having been given which satisfied the majority that the Council is not absorbed with its social programme. A committee on closer relations reported to the Assembly in favor of the appointment of an *ad interim* committee to confer with similar committees of other Presbyterian bodies as to the feasibility of a Presbyterian congress consisting of two houses, the churches participating to have equal representation in the upper house and representation in the lower house to be on the basis of number of communicants, the concurrence of both houses to be necessary for authoritative action in such matters as may be committed to the congress. The report went over for consideration by the Assembly of 1914. The statistics of the Church show a net gain in 1912 of 7,926 communicants, the total being 300,771.

PROTESTANT EPISCOPAL

The General Convention.—The triennial General Convention of 1913 was

looked forward to with unusual interest because of the action taken at the session in Cincinnati in 1910 in favor of a conference of all Christian churches in the interest of Christian unity, and of the discussion, extending over many years, concerning a change of name of the Church. The Convention met in New York City at the new Cathedral of St. John the Divine on Oct. 8. The House of Deputies was composed largely of new members, less than half having seen service in the Cincinnati Convention. The choice of president of the lower house fell upon Dr. Alexander Mann, of Trinity Church, Boston, who received 258 votes to 242 cast for Dr. William T. Manning, of Trinity Church, New York. The House of Bishops organized by the election of Bishop Vincent of Ohio as chairman. On the second day the lower house adopted an amendment to the constitution, passed also three years ago, providing for the election of a presiding bishop by the House of Bishops, the deputies concurring. In the present order the senior bishop acts as presiding bishop. The main argument for the amendment was the need of Church leadership, which is scarcely possible under present conditions, as the senior bishop, who is likely to be of advanced age, must give much of his time to the administration of his own diocese; the change was opposed because it contemplates a bishop without a diocese and tends toward archbishops and provinces. The vote for adoption was very large, more than six to one. The House of Bishops, however, did not concur, but proposed a new form of amendment, which was adopted, but must also be adopted again three years hence. The bishops deemed it inadvisable to elect a presiding bishop until the duties of the office should be clearly defined. Another constitutional amendment adopted by the lower house by a considerable majority of the dioceses was one proposing that domestic missionary districts be given a fractional vote of one-quarter. The upper house concurred. An amendment enlarging the rights of foreign missionary districts was also passed. These amendments are now incorporated in the constitution. An amendment requiring the assent of standing committees for the election of suffragans as of other bishops was rejected.

The question of changing the name of the Church may properly be called the burning question of the denomination. It was discussed during the months preceding the General Convention more fully than any other subject, both in the press and in the diocesan conventions. Ever since the beginning of the agitation, some twenty-five or thirty years ago, the division of opinion has been sharp and definite. The High Church element has very generally favored the change, and the Low Church party has opposed it. Some, however, who would like a new name oppose any change at present because it might affect unfavorably the movement for a World Conference of Faith and Order, into which the Church has thrown itself with great earnestness. The proposition failed three years ago by a small margin. Dr. Manning, who wants a change, but wants it only by a large majority, holding that "Protestant Episcopal" is only a legal title, introduced in the House of Deputies a resolution requiring a two-thirds vote to effect any change in the Prayer Book. This was intended to cover the method of change of name proposed three years ago, namely, by altering the name "Protestant Episcopal" on the title page of the Prayer Book. After much discussion on this resolution it was finally carried in the House of Deputies, only to be rejected by the House of Bishops, chiefly on the ground that it was too rigid in its requirements. The lower house endeavored to reach an agreement by concession, but the upper house refused to reconsider its action, the time for final adjournment having been reached. As this preliminary provision was pending during the General Convention, the question of changing the name was not discussed on its merits, and no formal proposition was considered by the Convention.

The provincial system, grouping dioceses and missionary districts in eight provinces, each province to have a synod constituted of bishops, clerical and lay deputies, all to sit together unless they vote to sit apart, was adopted by both houses. The grouping is the same as that of the

present departments for missionary, educational, and judicial purposes. The provincial synods are to legislate in such matters as may be committed to them by the General Convention. The plan was opposed by those who fear that the next proposition will be for archbishops, and who want no intermediary authority between the diocesan convention and the General Convention. The vote in the House of Deputies was overwhelmingly in favor of the system, on the ground that it will provide for a larger measure of local self-government, and that it will open the way to a reduction of the size of the General Convention, which is becoming unwieldy. In this connection both houses provided for a joint committee on proportionate representation in the General Convention, based on the number of clergy and communicants, to report three years hence.

Among questions referred to joint commissions to report to the next General Convention were these: Prayer Book revision and enrichment, not including change of name, the commission being continued; revision of the Hymnal; and missionary organization and administration. A joint committee of nine was appointed to coöperate with the International Commission on Marriage and Divorce, with a view of arranging for an international congress in May, 1915, to awaken the American conscience to the need of uniform divorce law establishing a minimum requirement for divorce. A joint commission was also appointed to report three years hence on the *Ne Temere* decree concerning marriage.

The report of the commission on a World Conference on Christian Unity (see this title, *infra*) was approved, and the commission was continued and authorized to secure incorporation. The growing sympathy and closer relations between bodies of Christians as evidenced by the Federal Council of the Churches of Christ was gratefully recognized and the opinion expressed that the commissions on Christian Unity and Social Service may appoint representatives to the Council. A resolution was adopted by the lower house informing the Board of Missions that in the judgment of the General Convention it has "full authority to coöperate with other Christian mission boards in united effort to arouse, organize, and direct the missionary spirit and activity of Christian people, to the end that the people of this Church may be enabled to discharge their duties to support the missions of the Church at home and abroad through prayer, work and giving." This would give the Board of Missions greater freedom in such coöperation than it has hitherto felt it possessed, but the upper house nonconcurred.

Among the acts of legislation accomplished by the General Convention was the ordering of an annual offering for the relief of the clergy, a pension system for the clergy, and canons for religious communities of men and of women. The question of negro bishops was discussed, but no action was taken except to commit it to a joint commission to report to the next General Convention.

Joint sessions of the two houses were held to hear reports on the missionary work of the Church and on educational matters. The Board of Missions, domestic and foreign, reported that its regular receipts for the triennium had been $3,797,000 and that special offerings had brought the total up to $6,000,000. It suggested the desirability of taking over from the Church of England missions in Central America, but for financial reasons advised that it be not done until after the next General Convention.

The Protestant Episcopal Church at the close of 1912 had 5,422 clergymen, 7,724 parishes, and 970,451 communicants.

World Conference on Christian Unity.—This movement originated in the General Convention of the Protestant Episcopal Church in 1910 (*A. Y. B.*, 1910, p. 732; 1912, p. 735). The Protestant Episcopal commission, Bishop Anderson, chairman, reported to the General Convention of 1913 that 34 denominations and Christian organizations had appointed commissions to coöperate with that of the Protestant Episcopal Church, including the Northern Baptist Convention, the Seventh Day Baptist Church, the Congregational body,

the Disciples of Christ, the Moravian Church, the Methodist Episcopal Church, the Northern, Southern, and United Presbyterian, Churches and the Presbyterian Alliance, the Lutheran General Synod, and the Reformed (German) and Reformed (Dutch) Churches. Since the report was prepared the United Free and Established Churches of Scotland, the Wesleyan Conference of England, and the United Methodist Church of England have taken favorable action, and also the Old Catholic Church of Europe. The first preliminary conference was held in New York City in May, 1913, commissioners representing thirteen of the above-named churches of the United States being present, together with a representative each of the Church of England and the Russian Orthodox Church. After harmonious discussion resolutions were adopted, declaring: (1) that "the true ideal of the World Conference is of a great meeting participated in by men of all Christian churches within the scope of the call, at which there shall be consideration not only of points of difference and agreement between Christians, but the values of the approximations to belief characteristic of the several churches"; (2) that while organic unity is the ideal to be kept in view, yet the business of the commissions is not to force any particular scheme of unity, but to promote the holding of the proposed Conference; and (3) that the questions for consideration should be formulated in advance of the Conference by committees of competent men representing various schools of thought. A committee was appointed to consider what questions must be settled "before it can be decided how the World Conference can be convened, what its membership shall be, and when and where it shall assemble; how such prior questions can be answered, and how matters for the consideration of the World Conference shall be ascertained and referred to the committees which are to study them; and how and when those committees shall be appointed."

REFORMED

Constitution of the Dutch Reformed Church.—The General Synod of the Reformed Church in America (Dutch) at its 107th session, held in Asbury Park, N. J., in June, adopted a report of its committee on revision of the church constitution. Few changes are made. It was proposed to allow classes to receive graduates of the theological seminaries into the ministry without the usual examination, but the General Synod voted to retain the present law. It voted, however, to release ministers from the constitutional obligation to preach frequent sermons on the Heidelberg Catechism.

Prospects of Union.—Overtures were received asking that negotiations for union be opened with the Reformed Church in the United States (German). Originally these two bodies were under the same ecclesiastical oversight. Many years ago a plan of union was submitted and adopted by the German body, but rejected by the Dutch body. It is believed that to-day such a project would have a better prospect of acceptance.

ROMAN CATHOLIC

Celebration of the Edict of Constantine.—The year 1913 has been observed throughout the Roman Catholic Church as a universal jubilee in celebration of the edict of Constantine, 16 centuries ago, proclaiming a cessation of hostilities against the Christian Church. An Apostolic Letter was issued by the Pope, early in the year, offering plenary indulgences to those who should observe the jubilee under the prescribed conditions.

American Federation of Catholic Societies.—The great popular event of the year among Roman Catholics has, in recent years, come to be the convention of the American Federation of Catholic Societies. The 1913 convention was held in August, in Milwaukee, and was attended, according to estimates, by 30,000 delegates and others from the United States and Canada. The societies embraced are the Knights of Columbus, the Knights of St. John, the Holy Name, Catholic Total Abstinence, numerous charitable, benevolent, and educational societies. A similar organization of women's societies was to have been formed at Milwaukee. It was to take no position either for or against woman

suffrage, the Church not having yet pronounced upon the subject, but after being advised on this point the women decided not to form a league. The Federation took a pronounced position against Socialism, but is embarked in a social reform movement. Resolutions were adopted asking the President and Congress to make a protest against the despoliation of the Church in Portugal; favoring labor unions so long as they keep out of politics and use proper methods to obtain justice; condemning the white-slave traffic, the divorce evil, eugenics, and anti-Catholic publications; commending Sunday observance; and demanding state aid for parochial schools. Concerning parochial schools Bishop McFaul announced this programme:

> First: Let the holy schools remain as they are.
> Second: Let no compensation be made for religious instruction. Our principle is, Let the pastor take care of the flock and live by the flock.
> Third: Let Catholic children be examined by a state or municipal board, and if Catholic schools furnish the regular education required, let the state put down the cash.

The Missionary Congress.—A Missionary Congress, attended by 700 clerical and 1,500 lay delegates, was held in Boston in October, to study missionary problems in the United States. It considered a plan for an organization to be known as the American Board of Missions to take charge of mission funds and publications.

Statistics of the Church.—According to official statistics at the close of 1912, the Roman Catholic Church has in the United States 17,945 clergy, of whom 4,672 belong to religious orders; 14,312 churches; and 15,154,158 Catholic population. Of the parishes, 5,256 have parochial schools, with an aggregate of 1,360,761 boys and girls, besides 47,415 children in church orphanages.

UNITARIAN

The Unitarian Conference.—The twenty-fifth session of the Unitarian Conference was held in Buffalo in October. President Charles W. Eliot, in his address, defined Unitarianism as that

> form of Christianity which prefers liberty to authority; sees neither deities nor demons in the forces and processes of nature; deifies no human beings; is not propitiatory, sacrificial, or expiatory; relieves man from irrational terrors; relies on reason and hope: has ministers and pastors, but no mediatorial priests; recognizes and resists wrongs and evils; and looks death in the face, but dwells chiefly on goodness, life and love.

International Congress of Free Christians.—The sixth triennial International Congress of Free Christians and Religious Liberals was held in Paris in 1913. Its aim is to bring together historic liberal churches, the liberal element in other churches, and scattered liberal congregations and isolated workers. Nearly 200 American Unitarians and others attended the Paris Congress. Dr. Wendte, the secretary, presented a report of conditions in various countries in the past two years as he had seen them in extensive journeys. He found nearly everywhere encouraging evidence of the loosening of the bonds of superstition, dogmatism, intolerance, and priestcraft, and that the ideals of civil and religious liberty are becoming more and more prevalent. He outlined a plan for a pilgrim World Congress of Theists beginning in 1914 or 1915, with meetings in London and continuing with meetings in other world centers. Unitarians, Universalists, Progressive Friends, Jews, Moslems, Brahmins, Theosophists, etc., are expected to make up the pilgrims.

MISCELLANEOUS

Christian Science.—The estate of Mary Baker Eddy, founder of the Christian Science Church, which has been in the courts in New Hampshire and Massachusetts, and which approaches $3,000,000 in value, is to be administered by the Board of Directors of the First Church of Christ, Scientist, in Boston, as trustees, the Supreme Court of New Hampshire having sustained the will against the contention of certain relatives of the decedent. The proceeds of the estate, both in Massachusetts and New Hampshire, will be applied to the promotion

of the doctrines of the Church and to its extension.

Shakers.—The last great Shaker village, Union Village, O., has ceased to be a Shaker community, and this celebrated communist organization has come to an end. A number of elders and sisters still live.

World's Sunday School Convention.—The seventh triennial convention of the International Sunday School Association, embracing all evangelical Protestant bodies, was held in Zurich, Switzerland, July 8-15. There were about 2,500 delegates present, embracing many from the United States and Canada. A report was received from a commission appointed three years ago to visit the various mission fields, showing opportunities for Sunday School work far greater than the number of workers and the amount of funds could compass. The convention deemed that the condition of Islam warranted the selection of a secretary to present its needs. Sir Robert Laidlaw was elected president. The next convention will be held in Tokio.

Church Withdrawals in Germany.—Withdrawals from the Protestant State Church of Prussia reached a very large figure in the latter part of 1912 and the first part of 1913. In the former year the number notifying the state authorities of the severance of their relation with the Church reached 100,000, and in the first four months of 1913, 40,000 more withdrew. It was estimated that the total for that year would be 200,000. The secession, it is explained, does not mean that there has been a change of faith, but is due to a desire to escape the Church tax. This tax, with the burden of the increased military tax pressing heavily, naturally becomes onerous to nominal members. No such defection from the Roman Catholic Church, however, is reported. By some, therefore, the Protestant defection is attributed to the increase of unbelief. The labor movement in politics is quite inimical to the Church, and naturally laboring men are among those withdrawing from it. It is stated that there is a distinct decline in the number of those who participate in the communion. In large churches in Berlin men are seldom seen at communion. This applies to Protestant churches and not to Roman Catholic. It is deemed not improbable that disestablishment will soon become a prominent question.

Religious Census of Hungary.—Hungary, according to the latest census, has upward of 2,600,000 in the Reformed (Calvinistic) Church, which, unlike the Reformed Church in Germany, Switzerland, and other countries, is governed by bishops; 1,306,436 in the Lutheran communion; and 74,275 in the Unitarian Church; making a total of 3,984,264 Protestants, or 21 per cent. of the total population. The Roman Catholic Church, to which the King of Hungary belongs, has 9,010,606 communicants and adherents, the Greek Church (Uniats), who acknowledge the Pope, 2,007,833; and the Greek Orthodox Church, 2,333,690. The Jews number 911,175. Nearly all the Protestant churches are losing members and the Roman Catholic Church also shows considerable losses.

Religious Census of Canada.—The results of the census taken in Canada in 1911, so far as they relate to the religious bodies, were announced in 1913. This is a census of "population" and not of communicants. The Roman Catholic Church comes first, with 2,833,041, a gain for the decade of 603,441; the Presbyterian second, with 1,115,324, a gain of 272,882; the Methodist third, with 1,079,892, a gain of 163,006; the Anglican fourth, with 1,043,017, a gain of 361,523; the Baptist fifth, with 382,666, a gain of 64,661. These figures show that Roman Catholics constitute 39.31 per cent. of the total population, Presbyterians 15.48 per cent., Methodists 14.98 per cent., and Anglicans 14.47 per cent. The largest percentage of increase for the decade was shown by the Anglicans, 53.05, the next largest by the Presbyterians, 32.39, and the next by the Roman Catholics, 27.06. Among the smaller denominations represented are Confucians, 14,562; Buddhists, 10,012; Sikhs and Hindus, 1,758; Shintos, 1,289; Pagans, native Indians, 11,840. There were 74,564 Jews and 797 Mohammedans. There were 3,110 who reported themselves as Agnostics and 26,027 who owned to no religion. The Christian Scientists numbered 5,073.

RELIGIOUS BODIES IN THE UNITED STATES IN 1912

The numerical condition of the religious bodies of the United States at the close of 1912 is given below. The totals indicate for 1912 a net increase of 2,826 ministers, 864 churches, and 573,586 communicants over the previous year.

The returns for some of the smaller denominations which report no statistics date back to 1906. The 143,000 ascribed to the Jews include only heads of families who alone are technically members of synagogues. The actual number of members must be five or six times greater. The number designated as Roman Catholic communicants represents the estimated total of Catholic communicants, being 85 per cent. of the Catholic population.

	Bodies	Ministers	Churches	Communicants
Adventists	6	1,172	2,522	95,808
Baptists	15	41,419	56,918	5,894,232
Brethren, Dunkards	4	3,484	1,239	119,644
Brethren, Plymouth	4	.....	403	10,566
Brethren, River	3	224	105	4,903
Buddhists, Chinese, Japanese	.....	15	74	3,165
Catholic Apostolic	2	33	24	4,927
Eastern Orthodox	7	263	274	434,000
Catholic, Roman	2	17,973	14,336	12,896,777
Christadelphians	.....	.....	70	1,412
Christians	.....	1,129	1,182	102,902
Christian Catholic (Dowie)	.....	35	17	5,865
Christian Scientists	.....	2,460	1,230	85,096
Christian Union	.....	295	237	13,905
Churches of God	3	509	595	41,475
Churches of Living God (Colored)	.....	101	68	4,286
Churches, New Jerusalem	2	128	143	9,554
Communistic Societies	2	.....	22	2,272
Congregationalists	.....	6,125	6,070	743,026
Disciples of Christ	2	8,054	12,467	1,497,545
Evangelical	2	1,523	2,627	184,866
Faith Associations	9	241	146	9,572
Free Christian Zion	.....	20	15	1,835
Friends	4	1,476	1,167	124,216
Friends of Temple	.....	3	3	376
German Evangelical, Protestant	.....	59	66	34,704
German Evangelical, Synod	.....	1,038	1,326	258,911
Jewish Congregations	.....	1,084	1,769	143,000
Latter-Day Saints	2	3,360	1,420	352,500
Lutherans	23	9,038	14,566	2,353,702
Mennonites	12	1,087	635	57,219
Methodists	16	42,849	61,027	6,905,095
Moravians	2	149	143	19,970
Non-Sectarian Bible Faith	.....	50	204	6,396
Pentecostal	2	732	510	22,416
Presbyterians	12	13,576	16,776	1,981,949
Protestant Episcopal	2	5,516	7,804	980,851
Reformed	4	2,113	2,653	459,106
Reformed Catholic	.....	7	6	3,250
Salvationists	2	2,994	872	27,345
Scandinavian Evangelical	4	611	848	70,500
Schwenkfelders	.....	6	8	941
Social Brethren	.....	15	17	1,262
Society for Ethical Culture	.....	7	6	2,450
Spiritualists	.....	.....	2,000	200,000
Theosophical Society	.....	.....	134	3,368
Unitarians	.....	527	476	70,542
United Brethren	2	2,262	4,216	320,960
Universalists	.....	702	709	51,716
Independent Congregations	.....	267	879	48,673
Total		174,731	221,024	36,669,271

JUDAISM

A. S. Isaacs

The Balkan War.—The transfer of 100,000 Jews from Turkish sovereignty to Servia, Greece, Bulgaria, and Rumania has involved new conditions which have aroused wide interest among the Jews of western Europe and America. Efforts were made to secure a guarantee of civil and religious liberty for Jews of the conquered territory. The United States sought to secure the insertion of a clause in the Treaty of Bucharest to guarantee civil and religious liberty without distinction of creed; the reply was that such liberty already existed (see also III, *International Relations*). In England, France, Germany, Austria-Hungary, and Italy, the status of the Rumanian Jews was the subject of parliamentary discussion. Rumania has assured full citizenship to the Jews of Silistria and other annexed territory, while Jewish recruits enlisted in the war against Bulgaria will also acquire citizenship.

The Zionist Congress.—The eleventh International Zionist Congress, held in Vienna early in September, was attended by 535 delegates and 30 members of the Nations' Committee, with about 1,800 present at the meetings. The existence of much divergence of view was indicated. The way in which Palestine colonization was carried on was strongly criticised, and opposition was aroused by the demand of the central committee that the direction of the Zionist financial institutions should be identified with the party management. The Jewish Colonial Bank and its associated undertakings have more than $2,000,000 in their keeping. Much activity was shown in regard to Palestine work in education and sanitation. It is estimated, as a sign of increasing Jewish interest, that in the last few years the Jews have gained seven per cent. of the entire area. The sum of 4,000,000 francs was raised to establish a Jewish university in Palestine. At a Zionist Congress at Cracow, composed of a section of the Vienna delegates, efforts were made to advance emigration to the Orient instead of to the Occident, and a special Palestine Workingmen's Committee was organized to influence Jews expatriated from former European Turkey and Asia Minor to join the Zionist movement and settle in Palestine.

The Ritual Murder Trial.—Mendel Beilis, charged at Kieff with the murder of a Russian lad, Andrelo Yusshinsky, in 1911, for the purpose of using his blood in a Jewish ritual, was brought to trial after two years' imprisonment, on Oct. 8. The trial attracted world-wide attention. Not only did Europe and America in general express their disapproval, but even Russian public opinion, as voiced by its representative bodies, including some by no means pro-Jewish, was equally outspoken in its condemnation of the charge and its prosecution. It was commonly held that the trial was promoted as an incentive to new pogroms against the Jews. The evidence brought forward to connect Beilis with the crime was evidently manufactured, and the blood accusation was supported by the most trivial and fanatical testimony. Beilis was acquitted by the jury on Nov. 10, and while small isolated outbreaks against the Jews occurred, the acquittal destroyed the possibility of a general pogrom.

Jews of France.—Latest data place the Jewish population of France at about 125,000, with three chief rabbis, 30 rabbis, and 160 synagogues. Paris has 100,000 of the Jews in France, and the rest are distributed among Lyons, Marseilles, Bordeaux, Besancon, Nancy, Bayonne, and Nimes. Despite their numbers in Paris, the actual roll of members in the various temples reaches only 8,000. Besides, Algeria has 69 Jewish communities in Algiers, Constantine, and Oran; nevertheless, the total budget for religious purposes in France and Algeria amounts to only half a million francs. The loss of Alsace and Lorraine 40 years ago removed 30,000 Jews and some historic communities, like those at Colmar, Strassburg, and Metz. There is very little emigration of French Jews to other countries, as is true of the French in general. Of recent years

the Russian Jewish immigration has been marked, particularly to Paris.

Jewish Progress in America.—Little of marked significance occurred during the year save gradual progress in the field of federation in charity and education, especially among the so-called orthodox elements, more or less recent arrivals from Russia, Rumania, and Galicia. Over 100,000 Jews came to the United States in 1913, including about 1,500 from the Levant, due to the Balkan War. In April the Jewish Publication Society celebrated its twenty-fifth anniversary; it has 11,000 members. The Hebrew Union College dedicated its new buildings in Cincinnati during the year. New synagogues, hospitals, homes, and schools were opened in Los Angeles, Sacramento, New Haven, Chicago, Muncie, Ind., Bangor, Baltimore, Lawrence, Malden, New Bedford, Boston, Minneapolis, St. Louis, Lincoln, Neb., Buffalo, Elmira, New York, Pleasantville, N. Y., Rochester, Schenectady, Yonkers, Toledo, Greensburg, Pittsburgh, Philadelphia, Scranton, Sumter, S. C., Bryan, Tex., Houston, Tex., and Roanoke.

Honors of the Year.—The appointment of Sir Rufus Isaacs as Lord Chief Justice of Great Britain was made in October. In France, M. Klotz became Minister of the Interior. Signor Malvano was appointed president of the Italian Council of State. Ernesto Nathan was elected for the sixth time Mayor of Rome. In Denmark, M. Brandes became Minister of Finance. In Turkey, Sassoon Effendi was made Under Secretary of State at the Ministry of Commerce and Agriculture. In the United States, Henry Morganthau of New York was appointed Minister to Turkey. Dr. Heltas became Burgomaster of Budapest. In June eight Jews were elected to the Prussian Diet. Professor Oppenheim, in Holland, refused the post of Minister of the Interior.

American Incidents.—An American, Dr. Joseph Hertz, was installed on April 14 Chief Rabbi of the Jews of Great Britain. In January President Taft received a gold medal from the International Order of B'nai B'rith in recognition of his efforts to secure observance by Russia of the Treaty of 1832. The Massachusetts Society for the Prevention of Cruelty to Animals has urged the abolition of the Jewish method of slaughtering animals. The Governor of New York approved a bill passed by the legislature making it a misdemeanor for theaters or hotels to discriminate against any one on account of race, color, or creed. Special vigilance committees were organized by the New York Jewish Community to fight against moral and political corruption revealed by the Rosenthal case. Continued opposition is shown by rabbis and Jewish societies to Bible reading in the public schools and the prescribed study of the *Merchant of Venice* as a textbook. Permanent committees were formed in June to take action against the stage caricatures of Jews.

XXXII. ART, ARCHÆOLOGY, MUSIC, AND DRAMA

PAINTING, SCULPTURE, AND HANDICRAFTS

David Lloyd

Museums.—Benjamin Altman, whose collection of paintings, ceramics, textiles, and other art objects has been known to students in Europe and America as important, not to say priceless, died in New York City on Oct. 7. He disposed a great fortune by an amazing will. None of its several philanthropic bequests came with less surprise than that of his art collection. A tradition is growing in this country which limits our wealthy collectors to a life interest in their treasures. Mr. Altman, who left no children, was sweeping in his generosity, painstaking and exact in his plans for the public. The Metropolitan Museum of Art received the offer of the collection on the condition of agreeing to keep it intact, apart, and unmixed. In case the Museum should decline, the executors were directed to incorporate the Altman Art Museum of New York and dedicate the collection to the public in a suitable building, preferably Mr. Altman's own house and galleries. The trustees of the Metropolitan, meeting on Oct. 20, voted to accept the bequest on the conditions named.

The collection has been assembling quietly for over 30 years. Without attempting a full account of it here, some of its items may be recalled. Among Italian masters it affords examples of Fra Angelico, Botticelli, Antonello da Messina, Francia, Giorgione, Titian, Filippino Lippi, Verrochio, and Cosimo Tura. The "Holy Family" of Mantegna tipped auction-room records at the Weber sale in 1912 at $150,000. Holbein's portrait of Lady Lee added a similar notoriety to its fame at purchase. A long-acclaimed Ruysdael is the landscape called "Cornfield." There are four Memlings, three of the earlier works of Franz Hals, a portrait of Philip IV of Spain by Velasquez, the subject of an intermuseum war of attribution a few years ago; a Vermeer of Delft, "The Sleeping Girl." Mr. Altman had the unique privilege of making his own no less than 13 of Rembrandt's paintings. Three of them, from the Kann collection, were shown in the Hudson-Fulton loan exhibition at the Museum in 1909. The others include the "Old Woman Cutting Her Nails" (1658), and the collector's last purchase, "The Toilet of Bathsheba After the Bath" (1643). The Altman Museum, had it been called into being, would have stood in the first rank of the world's small galleries. Its unusual quality was sufficient excuse for the Metropolitan's admitting it as an inviolable unit into a growing and orderly system.

J. Pierpont Morgan died in Rome on March 31. He had been interested in the Metropolitan Museum since its inception. He had been trustee of the corporation since 1888 and its president since 1904. During this latter period the Museum had entered a new stage in growth and prosperity. Its demands upon his time and attention were never postponed, not even, as Mr. de Forest, the newly elected president, has recalled, by such pressing business as the famous bankers' conference on staying the 1907 panic. He was liberal of his treasures, too. As a collector, his position was all but fabulous in two hemispheres and his insatiable interest in

the acquisition of objects of artistic merit resulted in an extraordinary private collection.

At the time of his death it had been transferred to this country and loaned to the Museum for exhibition. Twenty-nine paintings had been hung in January, among them the Colonna Raphael and portraits by Rubens, Van Dyck, Gainsborough, Reynolds, Romney, and Raeburn. Fourteen panel decorations painted by Fragonard for Madame du Barry have been added. The strength of the collection, however, does not lie so much in the canvasses. The famous group of miniatures numbers 900. The enamels include the Swenigorodskoi and the Hoentschel collections. There are Della Robbias among the Italian Renaissance sculpture and the bronzes, mainly of this period, comprise 260 pieces. For the rest, there are jewelry, silver, metal work, watches and clocks, crystals, amber, Italian majolica, early French faience, French, German, and Chinese porcelains, Venetian glass, tapestries, furniture, ivories, small carvings in boxwood and honestone, all told, about 4,100 objects. The ultimate disposition of this collection was left by Mr. Morgan's will to his son, J. Pierpont Morgan, Jr. No decision has yet been announced; but the loan exhibition which the collector had intended for the planned south wing of the building has been advanced in date by Mr. Morgan's suggestion, and will be seen on the upper floor of the new northeast addition early in 1914. Though the Morgan collection does not pass as an outright gift, it constitutes the Museum, at least for the present, a richly stocked storehouse of matter far beyond the reach of such an institution; and with the Altman gift in addition the Metropolitan has shot ahead in the course of a year to the front rank. Mr. Morgan's advice and example are held responsible for the recently announced decision of N. K. Riggs to pass over the claims of Washington and transfer at once to the Metropolitan his important collection of armor.

Superficially and for the moment this shifting of prestige may bring to light only the vexatious embarrassment of a lack of gallery space. But the importance of the Metropolitan's windfall lies in its cultural promise and its earnest of the next stage in the so-called American invasion, when the inspirational effect of our European plunder shall have gradually, yet inevitably, invaded the quality of American art and taste. Though the transfer of possession from private hands to public institutions has been going on continually in various parts of the country, a more magnificent scale has been struck during the year in New York. Other cities have other treasure in expectancy, some of it, as in the case of the Freer collection for the national capital, already designated.

The death of George Arnold Hearn, which occurred in New York City, Dec. 1, removed another important benefactor of the Metropolitan. A trustee since 1903 and untiring in his gifts, he displayed a discriminating interest in contemporary work. The well known collection which bears his name fills two galleries. He had also given to the Museum four funds of which the income is applied to the purchase of American paintings. An unusual condition in his gifts was that subjecting the paintings to later rejection by the Museum authorities and providing for replacement.

International Exhibition of Modern Art.—The newly formed Association of American Painters and Sculptors held its first international exhibition of modern art in New York City, Feb. 17 to March 15. The collection was seen later in Chicago. About 1,100 works were shown, or more than those of the Spring National Academy and the larger Pennsylvania Academy exhibitions combined. The declared purpose was to show the results of new influences, but no dead line was drawn. It was in many respects a notable affair. In the American exhibits the scope was narrowed to emphasize the qualities that have marked those painters in or out of the National Academy who became fretful of that institution. As the new society was organized in some sense of impatience with the older body, this result was perhaps at once natural and accidental. This reservation made, it should be said that the selection of American work was com-

prehensive and all the more interesting for including several types which had not before been accorded wall space in a general exhibition. The foreign work ran back to Manet, Monet, Corot, Courbet, Daumier. There was another group in Pissarro, Seurat, Sisley. The character of Gauguin and Van Gogh had waited introduction, not to mention Cézanne. Forty specimens of the elaborated beauty of Odilon Redon's touch and fancy made an exhibition by themselves. Recent extremists were also on hand, post-impressionists and cubists, Henri Matisse, Francis Picabia, Paul Picasso, Marcel Duchamp. The futurists had been bidden, but like the wedding guests in the parable, had sent their condescending regrets.

Unfortunately for the due appreciation of the Association's vigorous and welcome enterprise, the novelty of these new fashions, the extraordinary aspect of the sculptures and canvasses and their voluble defense swamped the solid merits of the exhibition as a whole. No such hubbub had been raised in many years, no such chatter about the province of art. The cool and urbane gauged the tempest on the teapot scale; more rapturous temperaments seemed to adopt the sigh of du Maurier's intense bride over Algernon's teapot, "Ah, let us live up to it!" Convinced defenders of beauty cited the art impulse of the insane for comparison. Critics were reminded that they had rejected impressionism; they were warned to reject post-impressionism at their peril. In Chicago the vice commission of the legislature, then sitting, felt called upon to investigate; and after the close of the exhibition there the official bulletin of the Art Institute comforted its patrons with the assurance that no one had been really harmed. Though this interest, aroused by a small section only, was disproportionate, it marked the year with a benefit which the customary round of the art season too often lacks: hundreds of people for once were genuinely interested in art.

The uncouth guise of the debated work alone was not so much the cause of the stir as its illustration of the well-ventilated theoretic programmes of the innovators. Matisse and his fellows announced the close of the chapter of representation. From the very beginnings of art the sanctions and limits of representation have been in a state of flux. Here was an arresting proposal, to do away with this function utterly. Yet the work itself showed that the fallacy in the theory was one of hyperbole. The post-impressionists are still representationists after their fashion. Picabia and the cubists came nearer to expunging the awkward difficulty. Their chosen province was more strictly limited to the impartment of mood, another element in the painter's product which has varied in dominance at different periods. In means these painters sought to restrict themselves to a pied representation of compacted and contiguous geometric solids. Now, though visual experience, which always trails emotion, is instinctively reflected in terms of the identical experience, it might be possible to match or approximately evoke the emotion in terms of other experience. When, however, as in Picabia's essays, the two projects are merged, the vehicle of mood breaks down and betrays the fallacy of a jumble. Again Duchamp attacked one of the inveterate problems of art, the suggestion of movement. Kinematophotography was frankly taken as the sanction. The so-called instantaneous photograph, the single rapid exposure, had outmoded, for instance, all art's horses from the Parthenon frieze down and nevertheless falsified the optical fact. When Duchamp, offering to surmount this falsity, puts his kinematograph to the test, motion is suggested by a new multiform symbol, which, in itself, is, if anything, a representation of such a train of persisting images as the mind cannot preserve or a running overlay of moving-picture films such as the projecting lantern could only throw when out of order. The balance between the record of things seen and the notation of the mental abstract sprung from them, the degree to which expression may be fruitfully concentrated on the artist's reflex of feeling, the means for communicating by immobile statement the sense of movement, these three puzzles were not answered; but the putting of them, even if phrased in a lingo ring-

ing with the suspicion of charlatanry or fanaticism, was a wholesome and well-heeded reminder that the technical expedients of the artist and the postulates of the æsthetician have been and remain continuously open to the joint challenge of reason and taste.

Other Exhibitions.—The fourth biennial exhibition at the Corcoran Gallery of Art in Washington, D. C., continuing to Jan. 26, gathered 246 paintings, most of them invited. They were hung on a single line with at least six inches between frames. John S. Sargent, as has happened before at the Corcoran, held the place of honor, this time with six paintings of women. The Pennsylvania Academy (Feb. 8 to March 30) brought together 480 paintings and 193 sculptures, the work of 410 artists, a large number of exhibitors, 103 more, for instance, than were represented in the International Exhibition. The Spring display at the National Academy (March 15 to April 20) was generous to outsiders, admitting 171 works by 143 non-members, against 144 by 104 academicians and associates out of a total membership of 266. Lucien Simon was selected this year for the honor of a separate room of exhibits at Pittsburgh's international salon, where the Carnegie Institute kept its display (April 24 to June 30) down to its usual figure of 350. The MacDowell Club began a third season of its exhibitions of self-constituted groups of eight without jury. In the two seasons past there have been shown 29 groups, comprising some 1,500 works by 254 artists.

Sculpture. — A new nickel five-cent piece, designed by James Earle Fraser, was first put in circulation at Fort Wadsworth, on Feb. 22, on the occasion of inaugurating the Indian Memorial. Though not a faultless coin, it followed a great tradition with vigor and simplicity and was so far superior to earlier issues, that the general coolness with which it was received throughout the country was discouraging to intelligent efforts at enhancing the coinage. The will of B. F. Ferguson left the greater part of his estate to the Art Institute, Chicago, as a fund of which the income was devoted to the erection in the city's parks and boulevards of sculpture commemorating American worthies and events. The fund now amounts to over $1,000,000 and the annual income available to $34,000. The first monument was dedicated Sept. 9, Lorado Taft's "Fountain of the Lakes." The same sculptor has been commissioned by the trustees to complete his "Fountain of Time," for which designs have been exhibited. A similar fund has been provided for Philadelphia by the will of Mrs. Ellen Phillips Samuel, who left a bequest of $500,000, subject to a life interest, for the erection of sculpture on the east bank of the Schuylkill.

Handicrafts.—The Handicraft Club of Baltimore held a current and retrospective exhibition in the galleries of the Peabody Institute of that city March 15 to April 2. The Museum of Fine Arts, Boston, repeated its last year's invitation to the Society of Arts and Crafts, Boston, which held an exhibition there April 3 to April 24. At the annual meeting of the Society, which reports a membership of 906 members, including 679 professional workers, the bronze medal of merit was awarded to I. Kirchmayer, woodcarver; Arthur J. Stone, silversmith; Henry C. Mercer, potter. The National Society of Craftsmen, New York, which held its usual exhibitions, has advanced its bulletin to the scope of an independent publication under the title the Arts and Crafts Magazine, now appearing quarterly.

American Federation of Arts.—The fourth annual convention of the Federation held in Washington, D. C., drew the appointment of 113 delegates from 83 chapters. Its deliberations were focussed on two topics, the small art museum, especially as an adjunct of educational institutions, and industrial art.

Tariff on Art Objects. — The new Tariff Act practically reënacted the provisions of the Act of 1909 on the importation of art objects, although a strong effort was made to have all duties removed. With the exception of the removal by the Act of 1894 and the partial removal by the tariffs of 1832 and 1846, art importations have been taxed since the founding of the Government.

ARCHITECTURE

LLOYD WARREN

Notable Structures of the Year.— The year 1913 has been remarkable in the history of architecture in America as having seen the completion, or the design for future construction, of a number of buildings which are the most important of their kind of any that have been heretofore erected in this country, either in the artistic quality of their design, the studied fitness of their plan, or for their great size.

A review of the buildings just completed, or planned during the year, brings this fact overwhelmingly into prominence, and it is difficult, in excellence of design, ingenuity of planning, or titanic mass of construction, to differentiate between these structures. Ecclesiastical, educational, administrative, and commercial buildings have exceeded all former limits. The Protestant Episcopal Church has, in New York, completed St. Thomas', perhaps the most admirable study of Gothic we have, and has held a competition for a vast Cathedral in Baltimore, which will rival in extent the greatest minsters of England. The Educational Building at Albany rears its lofty colonnade in emulation of the great Corinthian order at Baalbec. The Grand Central Station in New York is a triumph in the solution of the most complicated problems for the transportation and circulation of crowds, such as has never been achieved elsewhere, while the vast resources and extraordinary conveniences of the McAlpin and Biltmore Hotels attends to housing them. The Woolworth Building exceeds in height any building for occupancy yet executed. The New York County Court House, in ingenuity not only of arranging extremely difficult interior requirements, but of placing a monumental building on an irregular lot of ground, is of the highest interest. The New York Municipal Building houses the vastest single system of civic offices in the country. On the Pacific Coast rises the great group of buildings for the Panama-Pacific Exposition, which, in its conception of monumental courtyards in long succession, has found an architectural treatment which seems never before to have been thought of, and promises to be supremely successful, while on the projects for the Lincoln Memorial in Washington have been lavished every care and study, so that a monument may be erected worthy of the sentiments which Lincoln's genius inspires in the heart of every American. (See also I, *American History.*)

The buildings of this list impose by their evident importance, but besides them very many edifices have arisen in many states which the space at our disposal does not permit us to review; state capitols, university buildings, residences, post offices, and commercial buildings are on every hand, but the buildings we have named will serve the purpose of this review, for they express admirably the position of this last year in the advance of the material, if not altogether of the spiritual, civilization of the country. Three things they seem to typify: organization and centralization essentially; and, not less, ostentation, of success, of wealth, of power, and of vitality

New Principles of Design. — The competitions for the Municipal Building and the N. Y. County Court House have brought to the fore a principle of architectural design which is sure to influence the planning of many monumental buildings in the near future, and for this reason it is proper to take them especially into consideration, so that the origin of this characteristic can be clearly attributed to the year 1913.

The plots of ground allotted to these buildings were in each case of very irregular shape, a thing unusual in our American cities and almost always disregarded in utilitarian edifices, the perimeter of buildings usually following that of the lot in order to utilize every foot of available land, or to give façades of the greatest development possible. But contrary to practice, in these two cases, designs were chosen which violated this principle entirely.

The principles of design which seem

to have influenced the judgment of the jury in each of these cases are apparently identical: they chose the plans which had the greatest unity; that is to say, which formed a single and complete accentuated motive in themselves. Curiously enough, the winning designs were the only ones submitted which presented just such a characteristic, which shows clearly what a considerable departure the schemes constituted. The Municipal Building presents the form of a gigantic niche, with its axis drawn through Chambers Street, preceded by a monumental entrance way; the Court House consists of a circular edifice with no other break in its circumference than a colonnade serving to accentuate its main entrance. The importance of two such jury decisions, guided by the same principle, is very evident, and will tend in future competitions to produce plans in expression of this principle. It may only be the fashion of the moment, and in a few years it may be abandoned, but at present it is very strong and presents a violent antithesis to the manner of planning in Richardson's time which produced the Pittsburgh City Hall with its tower and flanking wings, or quite recently the New York Public Library with its composition of façade in five parts. The idea which influenced the jury seems to have been a delight in the silhouette of the plan, a pleasure in finding a contour different from the eternal intermeshing of square and round forms, domes, pavillions, and courts. And as we look at the monuments of the past, what dignity this principle has brought to the Pyramids and the Castle of St. Angelo, and what charm to the Cortile della Pigna and the Taj Mahal!

New Principles of Criticism.—Nor does the importance of these awards stop here, they imply a new principle of criticism which is equally pregnant of influence; the principle of judgment by "*parti*," as the French put it. The method of architectural criticism in France has long been this, dependent on the assumption (which in France is quite admissible) that an architect skillful enough to analyze and properly to lay out the mass of a plan can be trusted to look out for the details. In this country, until recent years, plan indication, in the general run of competitions, warranted no such assumption, and the text of competition programmes still shows how distrustful commissions are of the architects who may submit plans, so that the jury's work used to be one far more of detail than it now need be. This method of judging from *parti* consists, broadly speaking, of deciding almost entirely on the general layout of the plan, of which the mass, as expressed by the silhouette, is the most important factor, including as it does the axing, the balance, and the orientation of the building. The element, and a dangerous one it is, of the jury's collective or individual taste is thus subordinated, and a verdict is given on grounds of pure reasoning, derived from whatever experience the jury may have at its disposal.

Canons of Taste.—If we have discovered a typical characteristic of the times in the criticism which has governed the choice of *parti* in plan, we can hardly say as much for that of the architectonic treatment of these buildings, for they seem governed by no uniform canon of proportion nor mode of treatment. Each building differs radically from the other, and with difficulty can we trace any mannerisms of style which stamp any one of these buildings as being essentially the work of a particular designer. They are pseudo-classic or neo-classic, pseudo-Gothic or neo-Gothic, with a facility which is disconcerting in that we feel a certain evanescence in the structure or lack of conviction on the part of the designer, as though we might see next year the shell of any one of these buildings neatly peeled off and another one of newer mode or more modern fashion substituted in its place to please some group of its stockholders, or of its congregation, as the case may be. There is no essential fitness in the decorative treatment, as there is in the plan conception, nothing which arises from principles of construction or constraint of materials, and after the purpose of the frontispiece has been served we are quite prepared to see the finials chopped off and the columns removed, and perhaps we would not notice their absence. Perhaps this very fact gives these buildings some coherence of

style, which in some future time may assume shape in the critic's mind, but to us it must mean only one thing, and that is the absence of taste as a characteristic of this epoch—not good taste or bad taste, or appreciation of artistic work laboriously achieved by study, which to the Anglo-Saxon has always been a substitute for sensation through the palate, just as the modes of logic were to the scholiast a substitute for thought, but taste, pure and simple, that sense which has in modern times been essentially the creative factor of French art, the sense which enables us to degustate so that we feel in our inner consciousness, and not explicitly, a pleasure or a disgust; the capacity, in design, of visualizing a passing idea and marking its reaction on ourselves as pleasant or unpleasant. This would seem to be lacking in us, more in some parts of the country than in others, but where, it might be invidious to attempt to discover. The faculty of taste, be it understood, is purely subjective and personal, but is essential to the production of original work, and only under certain conditions can it become general and affect an epoch (super-taste, in short) so as to constitute a style. These conditions are various and cannot be treated here, but taste considered good in one period has been thought bad in another; Blondel attacked the taste shown by the Gothic builders, yet his own exquisite creations found their way to the lumber heap before they had existed for a century; now his works and those of the thirteenth century designers are treasured in our museums side by side.

And so we have seen during the year a strange medley of architectural and decorative forms arise in our cities, inspired, if we may so apply the word, from the most varied monuments of past history; influences apparently Greek, Roman, Gothic, or Eighteenth Century French in their form, but nearly always modern in their treatment or maltreatment. It is no longer the pleasant plagiarism of ancient monuments which, during the last decade of the last century, transplanted from the countries of their birth Romanesque and Renaissance churches, Florentine and Venetian palaces, to serve our rites religious or financial. The fact is that our designers have become far more facile and dextrous in their handling of architectural problems than formerly, and the draftsmen so much more practiced in their work that mere copying no longer facilitates design.

Architectural Education. — At the present moment it cannot be disputed that the skill of American draftsmen is of a very high order, and it is interesting to note here how it has been produced, for it is of recent growth, and before the beginning of this century the most expert draftsmen were summoned from Europe when the occasion demanded it. Some 12 years ago a group of young men, who had studied architecture in Paris, banded themselves together under the name of the Society of Beaux-Arts Architects, with the purpose of teaching the principles of their art in a manner similar to that of the École des Beaux Arts. The atelier system was started, and in company with it a scheme of frequent competitions in which these ateliers might vie with each other. The plan took, and new ateliers were formed in rapid succession in nearly every state in the Union; they sent their drawings to New York, where they were judged by the masters who came on for that purpose, and the premiated designs were published so that all competitors might see them. During the year no less than one thousand students have taken part in these exercises, and of those that have completed the course, their excellence is so marked that no longer does the master architect have to send abroad for highly skilled assistance. A word of tribute might here be given to those young men who, not for fame and not for pay, have consecrated many long evening hours as atelier *patrons* to accomplish this very admirable result. This matter of the education of draftsmen has, moreover, received much attention from the American Institute of Architects, and during its annual conventions there is now held a general meeting of members of the educational committees of all the chapters, in order to discuss the conditions which exist in various parts of the country, to offer suggestions, and to ask advice. These meetings

have stimulated the interest among practicing architects for the advancement of their draftsmen in architectural theory and practice.

For complete courses in the training of architects there are architectural departments in ten universities, and these departments have at last secured their independence from the schools of mines with which they have in general been connected. During the year they have formed an Association of Collegiate Schools of Architecture, which should be a strong factor in keeping up the standard of the study, and they encourage emulation among the students by intercollegiate competitions. The courses given at these universities seem excellent, but it is a significant detail that teachers of design are sought by them from France, and though the students graduate with a good foundation for beginning practice, nevertheless the École des Beaux Arts in Paris seems the Mecca whither all these young men desire to go to complete their education.

American Federation of Arts. — Of much moment not only to the profession, but to all of those interested in the beauty of the national capital, is the reorganization during the year of the American Federation of Arts, which the untimely death of its founder, Frank D. Millet, had left disorganized before he had had the opportunity of placing it on a firm basis. This Federation, binding into one body, as it does, all the art interests of the country, has now become a national art factor of prime importance. At a signal of alarm from its headquarters at the Octagon, the influence of all the art societies of the country can be brought to bear against any philistinical legislation in Washington which might threaten to mar the city's beauty, and this influence may, let it be hoped, be applied in the near future to awaken the powers that be to a sense of the vastly important position that art may hold in a country, not only to civilize, but to bring wealth.

LANDSCAPE ARCHITECTURE

JOHN NOLEN

Professional Advance. — In May, 1913, the Boston Society of Landscape Architects was organized. The primary object of this Society is to increase the efficiency of the profession, and its influence in promoting public welfare. Active members must be members of the American Society of Landscape Architects, resident in New England.

For the first time in its history, the American Society of Landscape Architects, which was organized in 1899, met west of the Alleghany Mountains, a session being held in Chicago in May.

The professional work of the landscape architect is being advanced by the larger use now made of the naturalistic land model. Some consideration of this subject, under the title of "Landscape in Relief," showing the advantages of representing land in three dimensions, is given in *Landscape Architecture* for January, 1913.

Landscape Architecture for Women. —An increasing number of women are entering the profession of landscape architecture. Cornell University, and most of the state universities that have courses in landscape architecture, open their doors to men and women alike. The Lowthorpe School at Groton, Mass., exclusively for women, has improved and extended its course during the year.

Popular Advance.—The appreciation of the place of landscape architecture, and its contribution to the people at large, is becoming better understood. During the year the advance of the profession in this respect has been facilitated by the annual meeting at Baltimore of the American Civic Association and by the European summer tour arranged by the same body.

Public Work. — Among the more important public works and developments of the year are the following: Brooklyn, N. Y., Botanic Garden; detailed plans for League Island Park, Philadelphia; plans for the commercial and industrial development of South Philadelphia; plans for several public playgrounds in Boston; city park system and civic center for Den-

ver, Colo.; park and playground systems for New London, Conn., and Little Rock, Ark.; general plan for school grounds, playgrounds, waterfront and parks of Schenectady, N. Y.; sites for public buildings and other changes in downtown Brooklyn, N. Y.; the Arroyo Seco Parkway, Los Angeles, Cal., the land alone to cost about $1,100,000; Willert, Hennepin, Riverside, and other parks in Buffalo, N. Y.; levee and other river-front improvements at Davenport, Iowa, costing $300,000; Cedar River improvements at Waterloo, Iowa; South Shore Park, Milwaukee, Wis.; and a city park system for Gary, Ind. General plans have been designed for the following cities or towns: Newport, R. I.; Erie, Pa.; Colorado Springs, Colo.; Walpole, Mass.; and the towns and cities in the Panama Canal Zone.

Plans for Colleges.—Some especially interesting works of landscape design have been undertaken during the year in the colleges and universities. Mention should be made of general plans for Richmond College, Va.; Queen's College, Charlotte, N. C.; Girard College, Philadelphia, Pa.; and Bates College, Lewiston, Me. Under the direction of Harvard University, general plans and report have been made, providing for large changes and improvements in Harvard Square and in the surroundings and approaches to Harvard University.

Land Subdivisions. — The so-called modern garden suburb or garden city is not essentially unlike the land subdivisions which are constantly being laid out by landscape architects. During the year 1913, many of these have been undertaken or carried along toward completion. Typical examples are the Forest Hills Gardens, New York, an enterprise of the Sage Foundation Homes Co.; Torrance, a large industrial town near Los Angeles, Cal.; the Neponset Garden Village, a copartnership housing scheme at Walpole, Mass.; and Fairfield, Ala. The economic aspects of such land developments have recently attracted attention. Two special articles have appeared on the subject: "Some Examples of the Influence of Public Parks in Increasing City Land Values" (*Landscape Architecture*, July, 1913) and "Taxation, Housing and Town Planning" (*ibid.*, October, 1913).

Domestic Landscape Architecture.—All over the country landscape architects continue each year to prepare plans for the development of private estates and gardens, large and small. A list even of the more important private places cannot be given here. The principal books of the year in this field are the following:

American Country Houses of Today, 1913, with a preface by Ralph Adams Cram. (New York, Architectural Book Publishing Co.)

JEKYLL, Gertrude, and WEAVER, Lawrence.—*Gardens for Small Country Houses*. (London, *Country Life*.)—Contains a well-arranged collection of illustrations, many of them new.

MAWSON, Thomas H. — *The Art and Craft of Garden-Making*, 4th ed. (London, B. T. Batsford; New York, Chas. Scribner's Sons.)—Contains colored plates and other illustrations, and plans.

TABOR, Grace.—*Old-fashioned Gardening; a History and Reconstruction*. (New York, McBride, Nast & Co.)

TRIGGS, H. Inigo.—*Garden Craft in Europe*. (New York, Chas. Scribner's Sons.)

City Planning. — The most significant contribution of landscape architects during the year is in the work of town and city planning. The details of the year's record in this field are covered in another department (see VII, *Municipal Government*). The "city planning study," conducted last winter and spring under the auspices of the National Conference on City Planning, brought together valuable ideas on the laying-out of a tract of 500 acres so as to provide in the best possible way for the housing of a factory population on the outskirts of a large city.

ARCHÆOLOGY

CLASSICAL ARCHÆOLOGY

WILLIAM NICKERSON BATES

The year 1913 has not been a prosperous one for classical archæology, chiefly because of the war between Turkey and the Balkan States.

Cyrene.—The American excavations at Cyrene in northern Africa, brought to an end by the Turco-Italian war,

will not be resumed. This territory has now become part of the Kingdom of Italy, and excavations by people of other nationalities are not permitted in Italian territory. The Italian Government has, however, paid the Archæological Institute of America $25,000 by way of compensation.

Sardis. — At Sardis good progress was made with the work, but no important buildings were discovered. Many interesting vases and gems, besides jewelry and other gold work, came to light; also many inscriptions, including a bilingual inscription in Lydian and Greek. Near the temple the end of a great road with marble lions set up beside it was uncovered. This was probably the Sacred Way.

In Greece little work was done because of the war. The American School did not excavate at Corinth, but the British School cleared out the Kamares Cave on Mount Ida in Crete.

Gortyna.—At Gortyna, in Crete, the Italian School at Athens has cleared the west side of the circular building, or odeum, upon the walls of which is the famous code of laws; this was made possible by changing the course of the irrigation ditch. The excavations proved that the building was located in the marketplace, and that this site had been occupied from the geometric period onward. In archaic Greek times a tholus was built, upon which the laws were inscribed. These stones were afterwards incorporated in the odeum built in the first century B. C. The latter building fell into ruin in the fourth century A. D. Five new fragments of the laws were brought to light by the excavations, as well as other inscriptions.

Reports are now available of work done on various sites:

Ephesus.—It has been found that at Ephesus there were two harbor gates, one with three openings, dating from the time of Augustus, and the other of two stories dating from the time of Hadrian. The Agora was 130 m. square, surrounded by colonnades two stories high and with gates on the south and west sides. Near the south gate was a large Corinthian temple of Claudius.

Pergamon.—At Pergamon the precincts of Demeter and Hera were completely cleared. The temple of Hera, which is well preserved, still retains one of its cult statues, a standing Zeus, almost complete. The temple was erected by Attalus II.

Tiryns.—At Tiryns it was discovered that the earlier palace was built in the period known as Late Minoan I or II; and the later palace in Late Minoan III. A group of coarse stirrup-cups with painted inscriptions was discovered. One consisted of several lines written in a script which differs from the contemporary Cretan script, but is of Cretan derivation.

In Italy the more important discoveries at the various sites were the following:

Cumae.—Below the summit of the hill at Cumae a large temple, oriented from north to south, was found. It was probably a temple of Jupiter. A short distance from it were terrace walls. At a lower level pre-Hellenic remains were unearthed.

Ostia. — The excavations at Ostia were continued and many finds made, but of no great importance. A large mosaic with symbolical representations of the provinces of Sicily, Africa, Spain, and Egypt was, perhaps, the most noteworthy.

Pompeii. — At Pompeii, in the Via dell' Abbondanza, a shrine with a painted frieze of the twelve gods was cleared, and many inscriptions, including election notices, two paintings, and numerous miscellaneous antiquities found. Outside the Porta Nolana the skeleton of a man lying on his back was discovered. His legs were raised, and he was grasping a tree.

Rome.—At Rome important discoveries have been made on the Palatine, where, among other things, twelve elevators were found below the Golden House of Nero; in the Basilica Æmilia in the Forum; in the Forum of Nerva, in the Baths of Caracalla, and elsewhere.

Sutri. — At Sutri a large bronze statuette of a standing youth was found. It has been placed in the Museo delle Terme.

Bibliography. — G. W. Elderkin, in *Problems in Periclean Building* (Princeton University Press), discusses the problems presented by the Parthenon, the Erechtheum, and the Propylæa. W. B. Dinsmore has three

important papers in the *American Journal of Archæology*, discussing the extant records of the commissions which had charge of the construction of these buildings. (See also *Epigraphy, infra.*)

EPIGRAPHY

WALTER DENNISON

The world of epigraphic science suffered a severe loss in the death, on Feb. 23, 1913, of Harry L. Wilson, of Johns Hopkins University, who contributed the article "Epigraphy" to the previous volumes of the AMERICAN YEAR BOOK. Professor Wilson published various articles in the *American Journal of Philology* on the inscriptions in the Johns Hopkins University collection; he had also nearly completed the manuscript of a handbook on *Latin Epigraphy*.

Progress is being made by Professor Littmann in the study and interpretation of the Lydian inscriptions discovered by the Princeton University Expedition in its excavation at Sardes, of which mention was made in an earlier report (*A. Y. B.*, 1912, p. 756), but as yet no public announcement has been made that these inscriptions throw light upon the solution of the Etruscan question.

Greek Inscriptions.—In the *American Journal of Archæology* (XVII, 157-200) is the publication by D. M. Robinson of epigraphical notes made by H. F. DeCou, who in the excavation of the site of Cyrene, conducted by the Archæological Institute of America, met a tragic death on March 11, 1911. These notes include 115 new inscriptions, mostly Greek, and numerous corrections to inscriptions already published. Many of the new inscriptions are unimportant, containing only a line or two; three of these, however, are metrical and one is a curse-tablet. W. Sherwood Fox has published in the *American Journal of Philology* (XXXIV, 74-80) the text with facsimiles of two Greek curse-tablets, purchased in Athens and now in the Royal Ontario Museum at Toronto. In the same volume of the *Journal* (194-197), H. F. Allen has published five Greek mummy-labels now in the Metropolitan Museum, New York. Four of these are on wood and one is on cloth; photographic reproductions accompany the article. Two important Greek inscriptions from Sardes, published by W. M. Buckler and D. M. Robinson, appear in the *American Journal of Archæology* (XVII, 29-52). The first of these, on a cylindrical pedestal, contains 22 lines of text and dates from the first century B. C.; it summarizes the public distinctions bestowed upon an "Iollas, the son of Iollas." A continuation of the same article (*ibid.*, 352-370) gives the texts of four honorific inscriptions to priestesses of Artemis, which date from the first and second centuries B. C. In the same *Journal* (XVII, 53-80, 240-265, 371-398), W. B. Dinsmore, of the American School of Classical Studies at Athens, presents a detailed study of the building accounts of the Parthenon, the Erechtheum, and the Propylæa, and summarizes the historical facts which they yield; several new fragments are identified.

Latin Inscriptions.—One of the most ambitious scholastic undertakings attempted by an American was the *Dictionary of Latin Inscriptions* (*Thesaurus Linguae Latinae Epigraphicae*) of the late George N. Olcott, of Columbia University. Dr. Olcott conceived the plan, and put it into execution, of preparing a dictionary of the extant Latin inscriptions, with the source, age, and place of publication of each inscription, and the meaning of the words. This work, which had proceeded as far as fascicule 21 (Arn-Aser), was brought to an abrupt end by the death of the author on March 2, 1912. Plans are being considered for the continuance and completion by American scholars of this monumental work. It is hoped that some definite announcement of the development of such a plan can be made in the next report.

Many American universities and colleges possess valuable and somewhat extensive collections of inscriptions, both Greek and Latin. More or less full reports of these have been made at various times in American journals. Besides the publication in the *American Journal of Philology* of the Johns Hopkins University collection, to which reference has been made in

previous reports, an account by F. W. Kelsey appeared in the *Michigan Alumnus* for May, 1913 (pp. 407-414), of the inscriptions in the possession of the University of Michigan. They number nearly 400. The largest number come from the vicinity of Pozzuoli in Italy, the ancient Puteoli; others are from Rome. They form a representative collection and illustrate the most important classes of Roman inscriptions.

MUSIC

ARTHUR FARWELL

The Composers' World.—The creative aspect of music, taken, as it must be, as an index to the true inward musical character of the time, reveals a condition of ideals so divergent, so unrelated and even antagonistic, as to give the appearance of complete confusion. The world of today is without any opinion as to what should be the proper character and purpose of music, a condition unfavorable for the production of great works, but through the general receptivity and state of expectation, favorable to the inauguration of new developments.

The broad general ideals of the comparatively recent past have been completely shattered, and no new ideals of commanding breadth have arisen to take their place, at least within the sphere of activities commonly known as the "musical world." The most famous composer of the time holds his place by virtue of being the most colossal producer of sensations, and has made no final human appeal of a nature to inspire confidence in his work as an ideal for the age. Distinguished talent is evident on every hand, and genius in certain places, in America as in Europe, but it is everywhere working at cross purposes, with the result of building up an amazing technique of diverse musical effects and colors, but without giving out a great message in music. The world of concert and opera, to which these observations apply, represents after all but an insignificant proportion to the whole population, from two to five per cent., in American cities. It is perhaps outside of this world that the most significant musical development of today is in progress—the movement toward making music in its higher aspects, in various ways, an uplifting force in the life of the whole people. This movement finds its chief expression and achievement in America, and touches not only the administrative, but the creative aspects of music, the new and broader purpose calling for the works of a new kind.

New Orchestral Works.—In the period since Wagner's death, the musical struggle has been less for the upholding of definite artistic ideals than for the establishment of national musical individuality, a condition now reached by various modern nations, though one merely adumbrated in America. In this connection it is interesting to note that of the year's orchestral novelties heard in America, perhaps the most significant is one through which Finland takes rank as a world power in music, the fourth symphony of Jean Sibelius, if indeed his earlier symphonies have not already lifted this nation to that rank. The symphony was produced by the New York Symphony Society on March 2. It is a work of extraordinary power and individuality, owing probably even more to the personality of the composer than to the striking national medium through which he works. It is a new voice in music, reflecting nothing of Wagner, Strauss or Debussy.

Americans have not been behindhand in respect to original and powerful works during the year. Edgar Stillman Kelley's Symphony in B Minor, "New England," was produced on June 3 at Norfolk, Conn., at a concert of the famous Litchfield County Choral Union. The composer in this work has sought to embody in it "something of the experiences, ambitions and aspirations of our Puritan ancestors." The several movements of the symphony are prefaced by quotations from the log-book of the *Mayflower*. W. A. Humiston wrote of this work:

As a whole the symphony is more than interesting, it is worthy of study, and of more than one hearing. Mr. Kelley is not afflicted with "modernitis," he does not strive, by straining after unusual harmonic (or unharmonic) combinations to cover up a lack of ideas.

At the same festival, on June 5, there was produced the new "Negro Rhapsody" of Henry Gilbert, who is striking the lyre with a bolder hand than perhaps any other American. Mr. Gilbert is thoroughly awake to the potentialities of the folk element in music, which he combines with original ideas of sharply defined individuality. Both of the above works were conducted by their composers. Another important American contribution to the year's offerings was a set of "Symphonic Variations" by Arne Oldberg, produced at the North Shore Festival at Evanston, Ill., late in May, and conducted by the composer. Mr. Oldberg's consummate mastery of thematic development combined with his high sense of beauty and exalted idealism entitle him to a place among the foremost modern composers.

"Five Pieces for Orchestra" by the Viennese futurist, Arnold Schönberg, were heard with the Chicago Symphony Orchestra on Oct. 30. They were greeted with howls, cat-calls and hisses. They appeared to a Chicago critic as "a din and a series of strident discords," with no attempt to present any definite theme or any consecutive ideas. Some technical acumen, however, was discerned.

The mathematically minded Max Reger was represented by his new "Romantic Suite" (op. 125) and "Ballet Suite" (op. 130). These works were given by the New York Philharmonic Society, on Feb. 7 and Nov. 20, and revealed elements of sensuous beauty surprising in this composer. Other new works forthcoming at the Philharmonic concerts were, "Bamboula" by S. Coleridge Taylor, on Jan. 2, based on a West Indian dance, brilliant in its scoring and ingenious in rhythm; "Symphonic Songs" by Josef Stransky, conductor of the orchestra, on Feb. 27, which were regarded as more effective in their instrumental than in their vocal part; a "Symphonic Scherzo" on March 6, an ambitious work of Straussian tendency by Fritz Stahlberg, which was not very cordially received; and an inconsequential "Festival Prelude" by Richard Strauss on Nov. 13.

Further new offerings by the New York Symphony Society were "A Fairy Tale" by Victor Kolar, Feb. 16; "Thebes" by the tardily discovered Ernest Fanelli, Nov. 16; and the "Falstaff" of Elgar in December.

The Boston Symphony Orchestra presented the following new works in New York; "Queen Mab," by Josef Holbrooke, Jan. 11, with the choral movement omitted; a symphony by the Hungarian, Erwin Lendvai, Feb. 20; and a "Symphonic Burlesque" by Josef Mraczel, March 22, which was regarded as a clever parody of Richard Strauss; and the "Tragedy of Salome" by Florent Schmitt, in November.

Frederick Delius' "Life's Dance" was brought out by the Chicago Orchestra on Nov. 7, and evoked the critical story, so familiar nowadays, of inconsequential themes and high sense of tone color and orchestral technique. Ernest Schelling's "Legende Symphonique" was produced with success by the Philadelphia Orchestra on Oct. 30: and other American works of the year were the daringly imaginative cantata, "The City in the Sea," by Arthur Shepherd, given in Chicago; the cantata "The Poet and the Dryad," by Cyril Graham; poem for baritone and orchestra, "The Desolate City," by Mabel Daniels; "Moth Dance," by Edward Burlingame Hill, the three latter works being produced at the MacDowell Festival in August, the last two with notable success; "Annabel Lee," tenor solo with orchestra, by James P. Dunn, at the People's Symphony Concert on Nov. 9; and incidental music for Louis Parker's "Joseph and His Brethren," Century Theater, New York, by the writer.

Among the important orchestral works of the year produced in Europe, there have been Gustav Mahler's ninth symphony, and Arnold Schönberg's "Kammersymphonie" in Berlin; Eugene d'Albert's third piano concerto, and Schönberg's "Gurrelieder" in Vienna; Arthur Somervill's symphony, "Thalassa," his variations for piano and orchestra, "Normandy,"

and Frederic Austin's "Symphony in E," in London.

New Operas.—The American operatic world experienced a new sensation on March 19, in the production of Modeste Moussorgsky's opera "Boris Godunoff" at the Metropolitan Opera House in New York. So completely does the composer let the Russian people speak for themselves by the introduction of the folk-music element, that it has been said that the opera was "written by the Russian people." Its success was instantaneous.

There was much interest in Walter Damrosch's new opera "Cyrano," with text by W. J. Henderson, which was produced at the Metropolitan on Feb. 27. The critic of the *New Music Review* wrote of Mr. Damrosch:

> He has written in a well recognizable post-Wagnerian style. . . . His score is commendable for its coloring, its richness, and for the sure touch with which he has emphasized and elucidated passages now emotional, now gay, now picturesque, now tragic. The music of "Cyrano" is undoubtedly composed with skill, with verve and in parts with spontaneity. It cannot be called music of inspiration, of originality, or in the highest sense, of power.

The long expected "Der Rosenkavalier" of Richard Strauss, text by Hugo von Hofmannsthal, was given its first American performance at the Metropolitan on Tuesday, Dec. 9, and was very cordially received, although it is thought doubtful whether it will stand as a popular success.

The enterprising Chicago-Philadelphia Opera Company has produced in New York the novelty "Kuhreigen" by Wilhelm Kienzl; in Chicago, Erlanger's "Noel"; and in Philadelphia "Christopher Columbus" by Franchetti and Massenet's "Don Quichotte."

The most important European *premières* have been Gustav Charpentier's "Julien," a symbolical and allegorical work, which was produced with somewhat dubious success, though received with much enthusiasm, at the Opera Comique in Paris on June 2; and Massenet's posthumous "Panurge" after Rabelais, which was extremely well received at the Theatre Lyrique de la Gaîté on April 25. Gabriel Faure's "Penelope" produced at the Theatre des Champs Elysées won high admiration. Franz Schreker, of Vienna, won operatic honors in Vienna, Leipsic and Frankfort with his "Der ferne Klang" and "Das Spielwerke und die Princessin."

The Operatic Situation.—The year of operatic history in the United States has been a stormy one. Early in the year Oscar Hammerstein sought a release from his contract with the Metropolitan Opera Company, which bound him not to give opera in certain of the principal cities until 1920. He announced that he wished to give grand opera in the English language, this question having been deeply stirred by the Society for the Promotion of Grand Opera in English, and a considerable popular demand having arisen. The Metropolitan Company refused Mr. Hammerstein's request, whereupon he announced that he would establish the American National Grand Opera Company, build a house, compete with the Metropolitan on its own grounds and also give opera in English. He began the construction of his opera house at Lexington Avenue and Fifty-first Street, New York, and the Metropolitan began injunction proceedings. Mr. Hammerstein defended himself on the grounds that the Metropolitan Opera Company was a combination in restraint of trade and that he had been so harassed by what he called its unfair competition with his earlier Manhattan Opera Company that he had not been himself at the time of signing the contract. On Dec. 6 the Supreme Court of New York granted the injunction sought by the Metropolitan, from which Mr. Hammerstein has appealed.

Meanwhile a venture of grand opera at popular prices, and in part in English, had been proposed, this enterprise to be under the auspices of the City Club. Desirable as such an enterprise was in any event, its friendly arrangement with the Metropolitan Opera Company, by which the latter was to lend its costumes and scenery, and the connection of certain prominent persons with both companies, led to the general supposition that the new venture was the answer of the Metropolitan Company to the gauntlet flung down by Hammerstein.

This new venture, under the name of the Century Opera Company, began its season at the Century Theater on Sept. 15, with "Aïda." Each opera was to be given the first night in its original tongue, and the remainder of the week in English. "La Gioconda," "Les Contes d'Hoffmann," "Lohengrin," "The Jewels of the Madonna," "Madame Butterfly," "Tosca," and "Lucia," were given in this manner to fairly large audiences, and with financial success. About the first of November the one night of opera in the original tongue was abandoned, all performances thereafter being in English. Thus a signal victory was chronicled for the leaders of the long and hard-fought "opera in English" cause.

Hammerstein's intended opening on Nov. 24 was meanwhile postponed to January, 1914, because of delays in the erection of the building, and it was announced that Mr. Hammerstein would give opera only in English at popular prices during his first season, deferring until another year the production of opera in French and Italian.

The Paris Opera witnessed the resignation of Director Brousson in September and the installation of Jacques Rouches. This led to the resignation of the conductor, Andre Messager, and the appointment of Camile Chevillard of the Lamoureux Concerts. Another resignation of the year was that of Andreas Dippel from the directorship of the Chicago-Philadelphia Opera Company, in whose place Cleofonte Campanini, of the Metropolitan Company, was appointed.

Good Music for the People.—The year has been rich in manifestations of the great American musical movement of the time, the extending of the sphere of good music to the mass of the people. These manifestations take three general forms, the festival, municipal concerts, and symphonic concerts on a popular basis; and also, more recently, the "pageant," allied to these. The day of the preëminence of the stereotyped "music festival" is over. It is the festival with individuality and local appropriateness that has now come to the front. In the foremost rank of these is the "Midsummer High Jinks" of the San Francisco Bohemian Club. In 1913 at its famous "grove" was produced, on Aug. 9, "The Fall of Ug," text by Rufus Steele and music by Herman Perlet. The Litchfield County Choral Union held its Norfolk (Conn.) Festival on June 3-5. This is now one of the most important channels of American creative musical progress, as is also the MacDowell Memorial Association, which held its annual MacDowell Festival at Peterboro, N. H., in the week of Aug. 17. The famous Bach Festival at the Moravian settlement of Bethlehem, Pa., took place May 30 and 31. The "Passion according to St. Matthew" and "B Minor Mass" were given. The North Shore Festival at Northwestern University, Evanston, Ill., has become an important institution under Dean Lutkin's management, and took place on May 26-31. The International Eisteddfod took place in Pittsburgh the first week of July.

The Summer municipal concerts in New York city which, as in the three years past, were under the supervision of the writer, mark the fourth and last year of the administration which has produced such revolutionary and surprising results. The year's appropriations were $39,500 to the Department of Parks and $35,000 to the Department of Docks. The central feature of the system was the maintenance of the symphony orchestra in Central Park, where from ten to twenty thousand people daily listened to the masterworks of Beethoven, Wagner, Tschaikowsky, and all the greatest composers. Cleveland, Ohio, and Springfield, Mass., as some other cities have already done, during the year supplanted band by orchestra for municipal concerts. In Los Angeles, the People's Orchestra, with prices from 50 cents down, is threatening the existence of the regular symphony orchestra, a condition which is arising in various other cities as well. In St. Paul and St. Louis, the regular symphony orchestras give also a series of "popular" concerts. Des Moines gives "community concerts" at 10 cents, and Springfield, Mass., gives free symphony concerts by a municipal orchestra in the municipal auditorium, supporting them by subscriptions from citizens.

The pageant movement during the year reached momentous proportions in America, some 25 important pageants, chiefly of local historical import, having been given in cities and towns of the United States. In the pageants of Meriden, N. H., in June, and Darien, Conn., in September, books by William Chauncy Langdon, and music by the writer, a definite art form was developed which might properly be called "community music drama."

Prize Competitions.—The National Federation of Musical Clubs, in convention in Chicago in the Spring, offered a prize of $10,000, contributed by citizens of Los Angeles, for a grand opera by an American, to be produced in 1915 in the California city at the ninth biennial of the Federation. The directors of the Chicago Grand Opera Company offered a prize of $5,000 for a grand opera by an American, to be presented in the season of 1914-1915.

Artists.—The following are among the more important European artists who have been heard in concert in the United States during the year: Mme. Sembrich, Mme. Melba, Edmond Clément, Ludwig Hess, Julia Culp, Elena Gerhart, Clara Butt and Lina Cavalieri, singers; Paderewski, Lhevinne, Bauer, Scharwenka and Katherine Goodson, pianists; and Ysaye, Kreisler, Kubelik, Elman, Zimbalist and Kocian, violinists.

The year 1913 has marked the centenary of the birth of Wagner and Verdi, and the celebration of both these composers has been world wide. Important deaths of the year are Francis Korbay, the Hungarian composer, March 9; Felix Draescke, German composer, Feb. 26; David Popper, 'cellist, Aug. 7; and Mme. Mathilde Marchesi, the celebrated teacher of singing, Nov. 18.

Expenditure for Music.—John C. Freund, the editor of *Musical America*, in addresses at the Music Teachers' Association of Philadelphia, and at Saratoga, before the New York State Music Teachers' Association, brought forth figures concerning the national expenditure for music which have startled the country, the annual total being about $600,000,000. Mr. Freund's tabulation is as follows:

Opera	$8,000,000
Concerts, symphony, recitals, clubs	25,000,000
Church organists, choirs and music	40,000,000
Theatre, vaudeville and movie orchestras	25,000,000
Brass and military bands	30,000,000
Teachers, conservatories, schools.	220,000,000
Students' expenses abroad	7,500,000
Conventions and festivals	2,500,000
Pianos	135,000,000
Music rolls	5,000,000
Organs, church and reed	10,000,000
Musical merchandise, violins, instruments	9,500,000
Sheet music and books	10,500,000
Talking machines and records	60,000,000
Artists' records and royalties	2,000,000
Musical papers, critics, writers	3,500,000
	$593,500,000

THE DRAMA

Montrose J. Moses

There have been no remarkable changes in the theatrical situation for the year 1913. The moving picture still monopolizes the interest of managers, and there is scarcely a theatrical firm of any position not affiliated in some way with a moving-picture organization. Daniel Frohman devotes a large part of his time to the preparation of films, and on the billboards we are given to understand that he presents Madame Bernhardt in "Queen Elizabeth," James K. Hackett in "The Prisoner of Zenda," and Mrs. Fiske in "Tess of the D'Urbevilles." Augustus Thomas went to Cuba with a "Soldiers of Fortune" company for the express purpose of finding local color for the camera. "Arizona" is now on the moving-picture circuit, while "In Mizzoura" is in preparation. These are typical examples of what is going on in all directions. Our best theatres, at different periods, are given over to moving-picture exhibitions. "Quo Vadis" and "The Last Days of Pompeii" have had long and popular runs. Under

the auspices of the British Antarctic Expedition, there was placed upon exhibition the animated picture record of "The Undying Story of Captain Scott, and Animal Life in the Antarctic," a human document as thrilling in its intimate details of the explorer's difficulties as it was a valuable historical record of a terrible tragedy. These pictures of the polar expedition were taken by the official photographer of the Scott party, and illustrate the value of the moving picture as a recorder of world events. The scenes were remarkable.

It has been a noteworthy year for the interference of the police, a jury being called upon to render judgment upon "The Lure" and "The Fight." The Stage Society of New York, anxious to give special plays on Sunday evening, that being the only time when prominent actors are free to offer their services, were stopped by the police as violators of the Sunday law, and now they are forced to disguise their ambitious attempts under the name of "dress rehearsal," and the audience is asked to slip into the theatre by way of the stage entrance. Afraid of the indiscriminate hand of the law, Richard Bennett, anxious to present Brieux's vital thesis drama, "Damaged Goods," sought the protection of the *Medical Review of Reviews*, under whose auspices the first performances were given; no tickets were on public sale at first, but those who became members of the Sociological Fund of the *Medical Review of Reviews* were entitled to a seat, the membership costing the same amount as a theatre ticket. This beating about the bush for freedom to establish a theatre of ideas is something to challenge serious consideration.

Nothing of any large distinction has been done by the American dramatist, though it is well to record that the National Institute of Arts and Letters at their Chicago meeting in the Fall bestowed a medal upon Augustus Thomas for distinguished life service in the cause of drama. Death has removed two men who represent in their persons two distinct traditions. Douglas Taylor was the President of the Dunlap Society, an organization that published a number of valuable brochures on the drama. E. M. Holland, the son of a distinguished comedian, was himself an example of the stock actor of commanding address. The most noteworthy book published during the year bearing upon the American drama was William Winter's *The Wallet of Time*, comprising personal reminiscenses and intimate criticism of the stage during over half a century, a period measuring his active work as critic on various papers in New York.

At close of the year it is significant to notice that some of the best and most popular plays sent upon the road by the theatrical managers have had an untimely end. There must be some inherent economic cause for this; the high cost of living may be one reason; the cheapness and craze of the moving picture may be another, the variety of the moving-picture films and their closeness to newspaper interest detracting from the artistic appeal of the theatre. But it is the impression of many that this slump in the theatrical market on the road as well as in the large cities where a company is permanent for some weeks, is due to the diffuseness of theatrical activity. The theatre manager is so interested in the by-products of his enterprise, is so concerned about the market wherein there is unwise competition, that he has ceased to concern himself with the actual producing of his own plays. By his interest in the moving-picture business, the manager is slowly killing the goose which should be laying him golden eggs.

Eugene Walter's "Fine Feathers," well played in its chief rôles by Robert Edeson and Wilton Lackaye, was successfully received, despite the grim ending where the hero, ruined by his efforts to keep pace with the crowd, commits suicide. The workmanship was not as close as in "The Easiest Way," but the sincerity of its purpose was just as marked.

"A Good Little Devil," adapted by Austin Strong from a fairy play by Rosemonde Gerard and Maurice Rostand, was Mr. Belasco's contribution to the cycle of fantastical productions seen in New York during the early part of the year. The little boy was too idealized to be devilish, but Mrs.

MacMiche, his aunt, as personated by William Norris, was the epitome of ill humor and villainy. This play is now to be seen in moving pictures.

Frederick Lonsdale's "The Woman of It" was the conventional drama of unhappy domesticity, with both husband and wife loving each other all the time. The atmosphere was thoroughly English. "The Spy," adapted by Peter Le Marchant from Henry Kistemaockers' "La Flambée" was the not too original mixture of love, jealousy, and murder. Its interest turned upon an appeal to French patriotism which totally missed fire with an American audience. The heroine, Monica Felt, whose husband was under trial, was adequately played by Edith Wynne Matthison. The play had a forced run.

William Collier appeared in his own play, "Never Say Die," a humorous conception with the farce element emphasized. The hero, rich and scheduled to die at a certain time by expert physicians, marries the sweetheart of a poor friend, so that at his demise he can turn over the bulk of his fortune to his widow who can then marry her original love. But after the ceremony, fate ordains that the doomed man recover, thwarting the physicians and making of him a poor keeper of a charitable bargain.

The most refreshing play of fact and fancy seen for many years was Eleanor Gates' "The Poor Little Rich Girl," based upon her story of the same name. The pathetic career of a neglected child of rich parents is recorded with plenty of social satire in the dialogue; the fancy element creeps in during the delirium of the poor little rich girl who falls ill and goes through adventures which partly reveal her own live imagination. Throughout one is made to feel the anxious presence at her bedside of mother, father, and doctor.

The Irish Players again visited New York with their national repertoire, and presented for the first time St. John G. Ervine's "The Magnanimous Lover" and Lennox Robinson's "Patriots." This movement continues to prosper, and its history has been excellently recorded by Lady Gregory in her latest volume entitled *Our Irish Theatre*. Prof. Cornelius Weygandt has also written a critical survey of *Irish Plays and Playwrights*.

Edward Sheldon's "Romance" met with popular success and furnished an agreeable vehicle for Dorris Keane, who assumed the rôle of an Italian opera singer in New York during the sixties of the last century. The play showed the influence of "Milestones," for in a prologue, an old Bishop tells to his recalcitrant grandson the story of his early life, thus going backwards two generations. Mr. Sheldon failed to catch the spirit of old New York, however, and his story degenerated into melodrama.

John Emerson was featured in his own play, "The Conspiracy," wherein a quaint old writer of stories for sensational fireside papers fathoms a murder plot which involves the Black Hand. The piece was marked by a certain narrative ingenuity and succeeded in holding its audience.

New York now boasts of an organization of Princess Players whose avowed purpose is to pursue the policy of the Grand Guignel of Paris. Only one act plays are given, and these are selected with the prime object of startling the observer. The initial programme, under the directorship of Holbrook Blinn, continued a wonderfully horrible study of bubonic symptoms in India; the piece was called "Fear" and was by H. R. Lenermand and Jean d'Auguzan. The same programme offered Edward Ellis's "Any Night," a brutal "white slave" study, wherein a father finds his daughter in a house of ill fame, and together they burn to death during a fire. The realism of the little piece resulted in broad discussion.

An interesting venture was that made by the Committee on Drama of the MacDowell Club when they presented for one matinee two of August Strindberg's one-act plays, "The Stronger" and "Pariah." These were introduced by Edwin Björkman's remarks concerning Strindberg's position in the drama. Much of the subtlety and fine sarcasm of these plays failed to have effect, even though some excellent work was done by Hedwig Reicher, Walter Hampden and Frank Reicher. The efforts of the State Society of New York are distinctive.

Thus far, during the year 1913, they have produced "The Tragedy of Nan," John Masefield's darksome and poignant drama, with Constance Collier as *Nan*. Their next ambitious attempt was Arnold Bennett's "The Honeymoon," in which Laura Hope Crews, Frank Reicher and Mrs. LeMoyne appeared. Their latest bill consisted of Joseph Medill Patterson's "By-Products," in which Laurette Taylor played the part of a light-minded shop girl who has the *joie de vivre* amidst sordid tenement conditions. Arthur Schnitzler's "Countess Mizzi," well translated by members of the Society, was excellently interpreted by Chrystal Herne in the title role.

One of the most effective pageant plays seen in years was Louis N. Parker's "Joseph and His Brethren," with Brandon Tynan as *Joseph*, a brilliant piece of work, and Pauline Frederick as the Egyptian courtesan, *Zuleika*. Not since the days of Wright Lorimer's "The Shepherd King" has Biblical dignity been so well represented on the stage.

The present generation of theatregoers were given an opportunity to judge one of the great old plays of a time now gone, with the star revival of Lester Wallack's "Rosedale," Charles Cherry appearing in the oft quoted role of *Elliott Grey*. Among the other Spring revivals may be noted an excellent performance of Augustus Thomas's "Arizona" which has lost none of its native atmosphere and which was particularly marked by the beautiful performance of Vincent Serrano in his original part of the vaquere. Pinero's excellent Court comedy "The Amazons" was likewise produced as a vehicle for Billie Burke, but in an effort to exploit that actress, the piece was subdued in some of its brilliant parts.

This closes the record of the meritorious productions of the theatrical season of 1912-13. Carl Roessler's "Five Frankforters," based upon an episode in the Rothschild family life, was carried over into the next season because of its popular appeal. The beginning of the next season, 1913-14, was ushered in with Lew Fields in "All Aboard"; though he gave a flash of characterization in the old sailor who dreams what transpires in this musical panorama, Fields without Weber is a curious anachronism.

"Believe Me, Xantippe" is a farce written by Frederick Ballard, a Harvard man who studied the drama under Professor Baker. A young man boasts that, accused of forgery, he could escape the clutches of the police for one year. This bet is taken up by a friend, and after devious adventures, the hero is caught out West, detected by the piece of slang used continually in the young man's conversation. This slang forms the title of the play. John Barrymore was amusing, but the play, excellent in the first two acts, degenerated into noise.

Mark E. Swan's "Her Own Money" was unusual in its theme. It propounded the domestic problem of a wife's money which she has saved and of a husband's need of it. The question implied is this: Does a man feel obligated to return a debt if the debtor is his wife? The problem results in estrangement and a sentimental return of the husband. The writing in this play is above the average.

After many years, John Drew returned to Shakespeare's "Much Ado About Nothing," reminiscent of the Daly days. His reading of blank verse was satisfactory, but the production failed to catch the note of irony and banter which should dominate the comedy. In consequence Mr. Drew found himself compelled to return to drawing-room atmosphere and revived Haddon Chambers's "The Tyranny of Tears," with its wit, its human understanding and its clever character drawing. Mr. Drew appeared also in J. M. Barrie's one-act play "The Will," which, laid in a lawyer's office during the reigns of Victoria, Edward VII and George V, reveals the attitude of a man toward the framing of his will from his clerkship days to those of his baronetcy. The writing in this has literary value, and in a short space Barrie has created an atmosphere socially significant.

David Belasco, in view of the announcement of Arnold Bennett's dramatization of "Buried Alive," rushed on his production of "The Temperamental Journey," drawn by Lee Ditrichstein from a French comedy,

"Pour Vivre Heureux." The similarity of motive between this play and Bennett's novel challenged criticism. When "The Great Adventure" was finally given, it was found that the central idea of the two comedies was the same: an artist presumably dead returns to witness the turmoil over his own funeral. Apart from that the similarity ceases. "The Temperamental Journey," due to the excellent acting of Mr. Ditrichstein, was amusing, but degenerated into second-rate farce. "The Great Adventure," wrongly cast with Janet Beacher and Lyn Harding in the chief roles, was consistent comedy throughout, quaint in spirit and unerring in character understanding.

George Scarborough's "The Lure" and Bayard Veiller's "The Fight" vied with each other for sensation and they both came under public surveillance with the result that "The Lure" had certain indecencies omitted, while "The Fight" abandoned an entire repulsive act. Scarborough's play was poor and brutally sensational. Its one distinct object was to make profit out of the "white slave" discussion. "The Fight," however, was fraught with seriousness, narrating the experiences of a woman who enters politics for the betterment of her city, with "white slavery" as a dominant issue. This subject has been worn threadbare, George Broadhurst dealing with it in his drama, "To-day," and Rachel Crothers giving serious and over-zealous treatment of the problems of the fallen girl in "Ourselves," which had a short career. Paul Armstrong's "The Escape," deemed to a brief existence, dealt in sensational fashion with the theme of the shop girl and the inevitable temptation resulting in what Walter describes as the "easiest way." Not content with this hackneyed topic, Mr. Armstrong brought into his story the consumptive and the congenital criminal as topics for consideration, and a doctor performs miracles which point a way to the understanding of Mr. Armstrong's social ethics.

Unable to find a suitable play for David Warfield, that artist appeared in a revival of "The Auctioneer," by Charles Klein. This piece competed for favor with Montague Glass's "Potash and Perlmutter," based on a popular series of stories published in a weekly paper. Most of the humor is dependent upon the foibles and sly acts of two Hebrew dealers in suits and cloaks.

Large audiences have patronized Sir Johnston Forbes Robertson in repertoire on a farewell American tour. He is assisted by his wife, whose most agreeable role has been *Cleopatra* in Shaw's "Cæsar and Cleopatra," an historical study full of zest and wit and truth. The repertoire comprised "Mice and Men," "Hamlet," "The Passing of the Third Floor Back," "The Light that Failed," "The Sacrament of Judas," "The Merchant of Venice," the Shaw play, and "Othello." Another English actor to visit America with a repertory of plays most of which have already been seen was Cyril Maude, supported by his daughter as leading woman. The company is only fair, while the scenery is deplorably lacking in solidity and in decorativeness. Mr. Maude opened with Marshall's "The Second in Command," already out of date in its construction, but none the less ample in spirit to allow the English actor to impress us with his ability to convey across the footlights a certain charm and joviality that was attractive. His appearance in "Beauty and the Barge," the combined product of W. W. Jacobs and Louis N. Parker, showed his excellence in eccentric character—a character that far outstretched in imaginative scope the limts of the very ordinary play itself. As a curtain piece to this, the one-act "Ghost of Jerry Bundler," W. W. Jacobs' tense sermon to practical jokers, revealed Mr. Maude's constitutional nervousness at the same time that it gave one the creeps up to the moment of the final tragedy where the practical joker is shot dead by a frightened friend. Thus far he has had his greatest success in "Grumpy," by Hodges and Percyval, the story of an old man who traces a robbery to its source and saves his granddaughter from misery.

The Princess Players began their season by abandoning two of the plays put into rehearsal; this was due to the fact that they thought the pro-

gramme too gloomy for public taste. When the theatre at last opened, the plays offered were five in number, including a clever comedy by William Hurlbut called "The Bride," a vulgar piece by Edward Goodman entitled "*En Deshabille*," a gruesome but none the less excellent drama, "The Black Mask," comparable in grimness to Masefield's "Tragedy of Nan" and just as distinctive in workmanship.

Stanley Houghton's "The Younger Generation," illustrated in comedy vein how a father may unwisely restrict a household and finally how he will be obliged to become more liberal in his interpretation of filial duty. As an afterpiece Grace George appeared in Barrie's "Half an Hour," a three-part sketch of a weak woman's rebellion against a brutal husband, and her ignominious return to him because of her inability to meet a poignant situation.

By far the most picturesque production was Laurence Housman and Granville Barker's "Prunella," a fantasy in which the dainty little heroine and Pierret love youthfully and mature sadly in a garden and mostly in the moonlight. Much of the verse was lost in inadequate reading, but on the whole the performance was marked by beauty and imagination, qualities one can ill-afford to treat brusquely. The whole performance was marked by good taste and charm.

Two big spectacular productions have marked the theatrical season. One was Thomas W. Broadhurst's desecration of Longfellow's "Evangeline," wherein were mixed certain lines from "Hiawatha." The other piece was the imported Drury Lane spectacle called "Hop o' My Thumb." There was an opportunity here to give the children a real Christmas treat, but the piece was evidently put on with great haste and with little feeling for pictorial values save in one scene, the living statues, where the effect is wonderfully maintained. Certain grossnesses make the piece of doubtful appropriateness as a fairy tale for young folks.

"At Bay," a frank melodrama by George Scarborough, has met with great success because of the excellence of the acting, largely sustained through the distinctive work of Chrystal Herne and Guy Standing. There is a healthy love story which is told through the medium of blackmailing, secret service maneuvers, and murder, in all of which the girl is involved. But the happy ending comes as suddenly as a pure atmosphere comes to a smoky room, once the window is opened. The love element is sweet, and there is a climax surprise which startles the audience into being thoroughly illogical and unquestioning during the rest of the play.

August Thomas's "Indian Summer" was filled with the insincere sentimentality of middle age. This dramatist cannot help but write bright lines, lines which give distinction to his dialogue. But the play was a queer assortment of mellowed love and disconnected melodrama. The play was roughly handled by the press, despite the efforts of John Mason to give conviction to the artist role.

A disagreeable character is "Tante" as revealed in C. Haddon Chambers' dramatization of Anne Douglas Sedgwick's novel. This is a minute study of the artistic temperament that demands all or nothing, and wrecks the lives of those who come in its way. Miss Barrymore's interpretation was excellent, marked by ever increasing surety of technique and understanding.

A bright little comedy was Anne Crawford Flexner's "The Marriage Game," which once more brought to America Alexandra Carlisle, a striking actress and most suited to the role she undertook, that of a whitewashed woman who finds herself uninvited on a yachting cruise. During the trip she has the opportunity of ingratiating herself with all the men folk aboard and of telling the wives of these same men some surprising truths regarding their inability to hold their husbands and make them loyal. If you play the game of marriage, so she says, then you must play it to win. This is the whole philosophy of the play.

A most delightful comedy by G. A. Birmingham was "General John Regan," who never existed, but who was invented by an American tourist for the purposes of waking up the village of Ballymey. Its humor depended on

the credulousness in Irish character as well as on the expansive imagination of one Dr. O'Grady. The play was full of spontaneous fun.

"The Man Inside" challenged expectancy because it was by Roland B. Molineux, once condemned to die; and because Belasco vouched for it. In thesis it made a plea for the rehabilitation of the criminal from within. The story possessed moral fervor rather than dramatic moments; and as usual afforded opportunity for some realistic stage management in an opium den scene. On the whole, the production was a disappointing Belasco venture.

William Hurlbut had an excellent idea in his "The Strange Woman," wherein a girl, brought up in a French atmosphere and believing in fresh originality. But its farcical in- Iowa. But the dramatist fell into the error of cartooning his types, and it was Elsie Ferguson's charm alone that saved the piece. As *Inez de Pierrefond* she maintained a dignity that raised the comedy above bathos.

Laurence Eyre's "The Things that Count," crude and stereotyped in many of its situations, was nevertheless most appropriate for the Christmas season. Its chief interest was in the development of a crusty old woman who possessed a heart of gold beneath. A transformation is effected in her on Christmas Eve by her grandchild and there are many pretty moments of sentiment.

"The New Henrietta" is Bronson Howard's old "Henrietta" brought up to date. The mine, the villain, the financier, and Wall Street are much the same as they were in the 70's, but we have advanced in other directions since then. Victor Mapes and Winchell Smith have therefore repolished the old furniture. William Crane has been cast in his role of years gone by, when he played opposite to Robson, and the play has caught favor with the public.

Henri Bernstein is the exploiter of the drama of one big scene. In "The Secret" he gives a little more care and attention to characterization than he gave in "The Thief." Mr. Belasco presented this play as a vehicle for Frances Starr, who had the part of a disagreeable woman intent on destroying whatever happiness she found in her way. The dialogue lacked brilliancy and the situations were far from original. The psychology of the woman was wanting also in definiteness.

"We Are Seven," a whimsical farce by Eleanor Gates, author of "The Poor Little Rich Girl," was disappointing. It contained many literary excellences, with charming touches of fresh originality. But its farcical incidents in no way blended with the legitimate whimsy of the main idea.

"The Philanderer" is an early Shaw product, though now given for the first time in America; it is of course witty throughout, but the effort to satirize Ibsen seemed rather forced as it was acted. A poor English company was sent over by Granville Barker, faultily rehearsed, and in the main roles poorly cast.

At the close of the year, the one pronounced success from the box office standpoint was George Cohan's "The Seven Keys to Baldpate," a mystery farce exhibiting clever technical manipulation, based on the novel of the same name. An author of sensational stories accepts a wager to go to Baldpate Inn, a summer resort, in the dead of winter, and in 24 hours—sequestered alone—to produce a story of the kind for which he is famed. He is given the supposedly only key to the empty Inn. But he unearths the adventures of six others who possess keys to Baldpate, and exciting times follow. The interest and surprise depend on a clever turn of dramatic workmanship.

As the year ends, we look with interest toward Winthrop Ames, who is about to announce the winner of the $10,000 prize offered by him some months ago for an American play. That managers are eagerly seeking the new dramatist is further evinced by the fact that the Princess Theatre has offered prizes to undergraduates of our colleges for one-act plays. We are facing no new problems as 1914 approaches, though we hear much of a French Theatre, of a Woman's Theatre, whatever that may be, and of a travelling theatre to go from school to school and present classic dramas; the latter idea is being fostered by Ben Greet.

XXXIII. LITERATURE AND LANGUAGE

AMERICAN LITERATURE

(Nov. 15, 1912, to Nov. 15, 1913)

EDWARD EVERETT HALE

Fiction.—The greatest productivity in creative literature has been as usual of works of fiction. Speaking roundly, we may say that the publication of fiction has been somewhat less than in 1912. Of the books designed to appeal to a cultivated audience, which make only a small proportion of the whole, there are about 350 by American authors. Of English novels republished in America there are about half as many. Of the best fiction the proportion is somewhat different. In almost any list of "best novels" a full half is likely to be by English authors. The following review includes only the work of American writers, with mention of a few English or Canadian authors who are practically domesticated in the United States.

The most popular forms of fiction are still the tales of adventure, mystery, or romance which became respectable from a literary standpoint some twenty-five years ago. The best examples of fiction, however, show the seriousness of interest in reality, in actual life, that was a note of the nineteenth century. It is not that there are so many "transcripts of life" or so many discussions of problems, but that so many writers even of romantic or idealistic tendency seem to be intent on particular phases of actual life or on some secret of life that lies beneath the everyday surface.

First to be named should be William D. Howells' *New Leaf Mills* (Harpers). Mr. Howells has been for years in character and achievement the chief figure in American fiction and this book shows the ripe and mature nature of one who has long known life. In it Mr. Howells goes back to the days of his youth and presents the manners and characters that he sees through the vista of half a century of experience.

Next to be noted is a set of stories dealing with the life-experience of some man or woman. In this group will be found more books that have attracted wide attention than in all other groups put together. Life-stories of women are: Ellen Glasgow's *Virginia* (Doubleday, Page & Co.), the plain but touching story of a woman of the old order who lives on into the new; Albert Edwards' *Comrade Yetta* (Macmillan), the life-experience of a Jewish girl in New York who rises from speeder in a sweat-shop to be a leader in the great social movement; Edith Wharton's *The Custom of the Country* (Scribners), a highly polished account of a sordid struggle for social success; Robert Herrick's *One Woman's Life* (Macmillan), an equally vivid account of a life of the same sort, less sordid and more probable; F. A. Kummer's *A Song of Sixpence* (Watt), still another and more sensational account of the American adventuress; Mary Johnston's *Hagar* (Houghton, Mifflin Co.), the life of a girl born in the quiet conventionality of the old South who becomes a cosmopolitan and a feminist; Daniel C. Goodman's *Hagar Revelly* (Mitchell Kennerley), ostensibly a study of why women go wrong; with others of less note. Stories of men are Mrs. Watts' *Van Cleve* (Macmillans), an almost historical study of an American and of America for the last 30 years; Conings by Dawson's *A Garden without Walls* (Holt), a theory of life pre-

sented in so charmingly idealized and imaginative a form that one almost forgets that there is a theory in it; Henry R. Miller's *The Ambition of Mark Truitt* (Bobbs, Merrill & Co.), a very able statement of what might be the career of a modern captain of industry; Basil King's *The Way Home* (Harpers), a story of a young man which offers also an answer to one of the religious questions of the day; Nelson Lloyd's *David Malcolm* (Scribners), the development of a mountain boy into a cosmopolitan journalist; Grace Lutz's *Lo, Michael* (Lippincotts), a well-founded story, though of slight actuality, of a man who rose from the slums and recognized his responsibilities to those he had left behind. These books are very different in character and degree of excellence, but all claim attention as stories of men and women who distinctly stand for some definite thing.

Akin to these are the books which present some social group or some phase of life, not, as a rule, because anything of importance is enacted therein, but because the phase of life or group of people is significant or interesting. Such are Weir Mitchell's *Westways* (Century Co.), which has for its subject a family and a community as affected by the storm of the Civil War; Meredith Nicholson's *Otherwise Phyllis* (Houghton, Mifflin Co.), a fine picture of a typical American character against an Indiana background; Miss Cather's very beautiful study of life on the prairie farm, *Oh Pioneers!* (Houghton, Mifflin Co.); Mrs. Stratton-Porter's *Laddie* (Doubleday, Page & Co.), which gives us the feeling of the farm and the countryside; Mrs. Wiggins' *Waitstill Baxter* (Houghton, Mifflin Co.), a picture of country life in Maine; A. Mulder's *The Dominie of Harlem* (McClurg), a story full of the local color of Dutch life in Michigan; and several more. A few books deal with some single question: such is Winston Churchill's *The Inside of the Cup* (Macmillan), a most stimulating presentation of one of the most fundamental things in the religious life of to-day; such also is Miss Robins' *My Little Sister* (Dodd, Mead & Co.), a poignant presentation of the awful possibilities of one of the accepted evils of our social system. Such, too, are practically some books which are not ostensibly studies of social questions, like Miss Bryant's *Ruth Anne* (Lippincotts), a book full of life in which a love story is so soaked in social atmosphere as itself to take rather a minor place in the reader's mind, and Miss Münsterberg's *Anna Borden's Career* (Appletons), in which the social interest often conceals the satire on the woman who turns this way and that in her effort to be selfish in the altruistic modes approved by society. Of this kind, strangely enough is Jack London's *The Valley of the Moon* (Macmillan), which begins with a picture of current conditions and people trying to better them by current remedies, and continues with the author's solution of "back to the land." Also to be noted here are Francis Lynde's story of alleged politics, *The Hon. Senator Sagebrush* (Scribners), and J. M. Forman's excellent presentation of the suffrage movement in *The Opening Door* (Harpers). Some of these books are historical, like Stewart Edward White's *Gold*, a book which is meant to present not a story or a character, but the life of the forty-niner; and Mary Johnston's *Cease Firing* (Houghton, Mifflin Co.), and Thomas Dixon's *The Southerner* (Appletons), two books in which the writers seek to discern the real forces beneath the chaos and glamour of the great war, the hardships, the dangers, the romance and the idealism. Even John Fox's *The Heart of the Hills* (Scribners) differs from his earlier stories of romantic incident because he is absorbed in what is really an important phase of national life, namely, the emerging of the mountaineer. So the other mountain stories are apt to be studies of conditions rather than stories of incident, like Francis N. Greene's excellent *The Right of the Strongest* (Scribners), and in lesser measure C. N. Buck's *The Call of the Cumberland* (Watt). F. H. Spearman's *Merrilie Dawes* (Scribners) is a romantic tale enough, but belongs here because under the romance lies the especial interest in a definite phase of life, that of the stock exchange. So also Miss Marjorie Patterson's *The Dust of the*

Road (Holt) has its love story, but its real interest is as a picture, very vivid and curious, of the theatre life. Among the books, realistic or not, which are occupied with actual fact, we must put a number of novels founded on the complications of sex, as Mr. Vance's *Joan Thursday* (Little, Brown & Co.), Miss DeJeans' *The House of Thane* (Lippincotts), Upton Sinclair's *Sylvia* (Winston), and Mrs. Martin's *The Parasite* (Lippincotts). Among the books full of the spirit of social questioning many will think we should place the book which is the most notable of the year, namely, Henry S. Harrison's *V. C.'s Eyes* (Houghton, Mifflin Co.). This is undoubtedly a book of characters, manners, problems, life itself, but differs from all those mentioned above in its structural power. While others are content to detail a career, to present a phase of life, to discuss a question, Mr. Harrison has felt it better to tell a fine story and let phases of life, social questions, careers and characters show for what they will. And herein he stands almost alone, for those who wish to show us life are usually indifferent to the emotional power of story, and those who have a story to tell are generally indifferent to, or perhaps unconscious of, character and life.

The main interest of a great many of the books of the year lies in their stirring portrayal of adventurous incident, their baffling mystery, or their sentiment of romance. First to be named in this group is Rex Beach's *The Iron Trail* (Harpers). The book depicts a passing civilization, it is true, but it is read because there is something to be done of which the novelist tells us the story. There are many other of these stories of adventure in the great world. Among the best stories of the woods are H. Footner's *Jack Chanty* (Doubleday, Page & Co.), J. O. Curwood's *Isobel* (Harpers), and H. H. Knibb's *Stephen March's Way* (Houghton, Mifflin Co.). The great West has its stories of adventure, A. M. Chisolm's *Precious Waters* (Doubleday, Page & Co.), Zane Grey's *Desert Gold* (Harpers), Ridgewell Cullom's *Night Riders* (Jacobs), and many more. Indeed, there are stories of romance and adventure over the whole world, from T. E. Harre's *The Eternal Maiden* (Kennerley), a story of the Esquimaux, to Rowland Thomas's tropical *Fatima* (Little, Brown & Co.). The East arouses many imaginations, as, for example, in Mr. Isham's *An Aladdin from Broadway* (Bobbs, Merrill & Co.), Mason and Hilliard's *The Bear's Claws* (McClurg), Harold MacGrath's *Parrot & Co.* (Bobbs, Merrill & Co.), and others. There seem to be no real Zenda stories this year, though G. B. McCutcheon's *A Fool and his Money* (Dodd, Mead & Co.) comes somewhere near them. Here belong some of the historical novels. Most of these are Civil War stories; some are serious studies on a large scale and have been already mentioned. John Luther Long's *War* (Bobbs, Merrill & Co.) is in the beginning a most attractive picture of the life of a quiet Maryland farm in war time, but later becomes more a story of intrigue and adventure. Others are more frankly stories of incident and excitement, like Miss Lincoln's *The Lost Despatch* (Appletons), and Chittenden Marriott's *Sally Castleton, Southerner* (Lippincotts). Apart from Civil War stories there are few pieces of historical fiction to be noted, Canon Brady's *The Fetters of Freedom* (Dodd, Mead & Co.) and Miss Kingsley's *Veronica* (Appletons) being most worthy of remark. There have been as usual a large number of detective stories, some of which have given a new turn to familiar motives. Mrs. Rinehart's *The Case of Jennie Brice* (Bobbs, Merrill & Co.) and Miss Bunker's *Diamond Cut Diamond* (Bobbs, Merrill & Co.) are good examples of their author's ingenious craft. Burton Stevenson's *The Gloved Hand* (Dodd, Mead & Co.) has some new elements, but is not so strong as the stories which gave him his reputation. H. K. Webster's *The Ghost Girl* (Appletons) and Maximilian Foster's *The Whistling Man* (Appletons) are ingenious, but do not seem to call for additional remark. *The Bishop's Purse*, however, by Oliver Herford and Cleveland Moffett, is noteworthy. It is confusing in its multiplicity of action, but the presentation of char-

acter is on a far higher plane than is common in detective stories. *November Joe*, by Hesketh Pritchard (Houghton, Mifflin Co.), is an ingenious attempt to translate a detective story into terms of the great outdoors. But though ingenious in conceiving the detective of the woods, the author had but slight ability to give an idea of the medium in which he worked. The feeling for nature in the book is slight. Owen Johnson in *The Sixty-first Second* (Stokes) has not been more fortunate in his combination of detective story and society novel. He is so absorbed in portraying his social *milieu* that he does not keep alive any interest in the solution of his mystery. Arthur Stringer's *The Shadow* (Century) is perhaps not to be called a detective story. It is the tale of a world hunt after a criminal and good after its kind. Of the stories of social life not otherwise mentioned the chief would be Robert Chambers' *The Business of Life* (Appletons), in which the author ballasts his fashionable story of club and country-house with a definite idea on one of the aspects of the social life of to-day, and Booth Tarkington's *The Flirt*, a picture of a violent though somewhat conventional flirt against a background of some Middle West metropolis.

Such a division of the fiction of the day indicates only two great impulses and therefore must omit a number of books of value. Such are Mrs. Burnett's *T. Tembarom* (Century Co.), which we might call a good old-fashioned story of a lost heir, told with unfailing spirit, sympathy and invention; H. E. Rives's *The Valiants of Virginia* (Bobbs, Merrill & Co.), a story of a very modern man in ideally characteristic surroundings of the Old South; and Stephen Whitman's *The Isle of Life* (Scribners), a wildly romantic story of lurid cast, but of a good deal of skill in handling. Miss Eleanor Abbott's *The White Linen Nurse* (Century Co.) is a whimsical but most attractive love story, as full of feeling for life as though it were an absolute "transcript." Still unclassified are G. R. Chester's Wallingford stories, of which two have appeared during the year. Critics have striven to find in these extravaganzas a presentation of a specifically American phase of life, but one hardly likes to import such an element of seriousness into such amusing creations. There have been a number of pure extravaganzas: Emerson Hough's *The Lady and the Pirate* (Bobbs, Merrill & Co.) is not without a true feeling for the beauty of romance; L. J. Vance's *The Day of Days* (Little, Brown & Co.) is something that makes one feel as though it must be fact, though we know absolutely that it must be the wildest fiction; Miss N. W. Putnam's *The Impossible Boy* (Bobbs, Merrill & Co.) is a very attractive imagination of the road and the town. There are, finally, a number of books that come very near extravagance, humorous sketches like J. C. Lincoln's *Captain Pratt's Patients* (Appletons), Mrs. Greene's *Everbreeze* (Appletons), Irving Bacheller's *The Taming of Griggsby* (Harpers), all practically continuations of well established favorites.

Short Stories.—The short stories collected into permanent form are an almost infinitely small part of the vast number written. It would be useless, therefore, to try to gather from the few that do so appear anything significant in regard to tendencies or influences. One of the best collections is Mrs. Josephine Daskam Bacon's *The Strange Cases of Dr. Stanchon* (Appletons). Mrs. Bacon has, perhaps, not made the character of the great alienist a perfectly definite and enduring figure, but the stories are extremely good. Miss E. Singmaster's *Gettysburg* (Houghton, Mifflin Co.) contains as fine examples of the short story as will be seen. These stories of Gettysburg in the war and in later years offer in a few pages an extraordinarily wide gamut of passion and emotion. Thomas Nelson Page's *The Land of the Spirit* (Scribners) is more significant in its idea than in its execution; these stories are good specimens of Mr. Page's work, though they do not really do much to reveal the "deepening note of thought and feeling" which the author sees in American life. Miss Alice Brown is well known as a member of the group of New England story-tellers and her

Vanishing Points (Macmillan) is a good example of the fine observation and delicate expression which is common to them. Another collection of much the same sort but with rather more pulse of life is Anna Nicholas' *The Making of Thomas Barton* (Bobbs, Merrill & Co.). These tales of everyday life in Indiana and elsewhere have a great charm. Anne Douglas Sedgewick's work is well known; in *The Nest* (Scribners) she has grouped some of her later work with some of her earliest in a volume as remarkable for its observation as for its cleverness of statement. The "quiet" stories, as we may call them, are chiefly by women. More uproarious are the men's stories. Jack London's *Night Born* (Century Co.) is as vital and bloody as most of his work, and as interesting. C. E. Mulford in *The Coming of Cassidy* (McClurg) gives more typical cowboy stories of the heroes of Bar-20. Ralph D. Paine's *Captain O'Shea* (Scribners) is a collection of original and exciting stories, with a good central figure of the modern adventurer. *Murder in Any Degree* by Owen Johnson (Century Co.) is characteristic of the author's new manner, smart and striking, and yet very different from his transcripts of school and college life. Mr. Johnson seems hardly well enough settled in his new field for his work to have really fine quality. Of detective stories, A. B. Reeves' *The Poisoned Pen* (Dodd, Mead & Co.) contains a record of the work of Craig Kennedy, the inventor of the application of the methods and discoveries of physical science to the detection of crime. Mrs. Green's *Masterpieces of Mystery* (Dodd, Mead & Co.) is more old-fashioned, as one may say; less modern, but with more mystery. These are her first short stories in a field where she has long been a conspicuous figure. In *Blister Jones* (Bobbs, Merrill & Co.) John T. Foote gives much of the feeling of the world of the racing circuit. The book gives an excellent notion of the good and bad in a life that gives both good and bad in a man plenty of chance. Charles G. D. Roberts' *The Feet of the Furtive* (Macmillan) is a collection of his well-known animal tales, full of the tragedy of the forest.

Biography. — Next to fiction the most striking department of literature during the year is undoubtedly biography. This is characteristic of a year in which the chief novels have been more biographies than anything else. The most striking book in this division, both by subject and by treatment, is the *Autobiography* of Theodore Roosevelt (Macmillan). Few men of our day have had more varied and interesting experience, and of these none has had the gift of incisive style that makes this book so effective. There is nothing like it for an idea of the American in action. Next to it should be placed the *Reminiscences of Augustus Saint Gaudens* (Century), not a formal autobiography, but nevertheless a fine record of the life of the greatest American artist of our time, one who did most to give the American spirit a beautiful and enduring form. In *A Small Boy and Others* (Scribners) Henry James gives an account of his boyhood in New York and London. In style it will not disappoint the lovers of James at a much later period; in substance it is a very interesting combination, namely, Henry James and his environment, both American and English. John Muir's *The Story of My Boyhood and Youth* (Houghton, Mifflin Co.) is an interesting account of his early days in Wisconsin. Mrs. Amelia E. Barr's *All the Days of My Life* (Appletons) is a remarkable record of one widely, but not well known, but whose life is worth knowing. The book gives a simple and vivid picture of a rich and varied life. Few that we know give a better example of reverence and faith and of untiring patience and energy. Jack London's *John Barleycorn* (Century) might be called a special autobiography; it is an account of Jack London's life as a drinking man. To men who drink or have drunk it will be as curious a statement of experience as they have ever read. To those who do not drink it will be as forcible a piece of evidence as they have ever had. Its literary value would seem to come from its author's ability to write with extraordinary frankness. The *Autobiography of George Dewey, Admiral of the Navy* (Scribners) is an important story told

in plain, clear style. It presents not only the very notable public services of Admiral Dewey, but in its record of his life gives us a valuable view of the American navy for half a century. *Retrospections* by Hubert Howe Bancroft (Bancroft Co.) is a most interesting view of a remarkable man. The most undeniable value is in his account of the gathering of the material and the writing of his historical works. As to his view of the history of his own time there will be great difference of opinion. The fourth and fifth volumes of John Bigelow's *Retrospections of an Active Life* (Doubleday, Page & Co.) continue one of the valuable records of the nineteenth century. The latest volumes go no farther than 1879, but they offer an admirable means of gaining some of the tone and color of the years immediately following the Civil War. Few works of the kind give us so much fact and gossip with so little prejudice or ill feeling. *The Life and Letters of Charles Eliot Norton* (Houghton, Mifflin Co.) begins the record of a life which was of the greatest influence in the history of culture in America. These volumes give us an intimate view of Norton's relations with the chief literary men of America. More significant, perhaps, are the letters to literary men of England which give us even a higher idea of Norton's character than we might otherwise have had. The *Letters and Recollections of Alexander Agassiz* (Houghton, Mifflin Co.) presents a good idea of a career that will be more interesting to most readers than that of the author's famous father. Mr. Agassiz was not so great a teacher as Louis Agassiz, but he was remarkable as an investigator. William Winter's *The Wallet of Time* (Moffat, Yard & Co.) is a survey of the American stage for half a century by the man best qualified to write it. Doubtless many will not agree with his ideas, but it is impossible to deny the great value of such a view. The *Life and Letters of Gen. G. G. Meade* (Scribners), edited by his son and grandson, is very timely in this year of Gettysburg. The most valuable feature is the long series of letters to his wife, giving account of daily doings and opinions of the men of his time. Frederic Bancroft has edited the *Letters, Speeches and Correspondence of Carl Schurz* (Putnams) in a collection which gives abundant material and leaves the man to speak for himself. It reveals the amiable private character and gives a good idea of the fine public life of one who was typical of the best American life of his time. Mrs. De Koven's *Life and Letters of John Paul Jones* (Scribners) is a thorough and painstaking study of an important life, able and sympathetic, if not always with the strictly critical spirit of the historian. John Jay Chapman's *William Lloyd Garrison* (Moffat, Yard & Co) is as brilliant a piece of biographic work as any of the year. Written absolutely from the Garrisonian standpoint, it is a very telling presentation of the value of Garrison's life. *A Sunny Life: Samuel June Barrows*, by Isabel C. Barrows (Little, Brown & Co.), records a life useful, influential and fine, besides being sunny. Mary E. Phillips's *James Fenimore Cooper* (Lane) is a book which has long been needed. It gathers contemporary material of great value both in word and picture. As a personal record it will probably never be superseded. Alexander Irvine's *My Lady of the Chimney Corner* (Century Co.) is a charming account of his mother as he remembers her in the early days in Ireland. It is written more as though a bit of fiction than in the conventional form of biography and is all the more interesting therefor. Miss Helen A. Clarke's *Browning and his Century* (Doubleday, Page & Co.) is not exactly a biography, nor a criticism, but a study of the relation of Browning to the great forces of his age, by one who has long studied the poet and his work.

Poetry and Drama. — In poetry much has been written that is charming and beautiful without being great. The award of the Nöbel prize to Rabindranath Tagore, the great popular approval of Rudyard Kipling shown by a vote of 22,000 out of 40,000 taken recently in England by a popular weekly, the devoted appreciation of the Countess de Noailles in France, lead us to ask whom Americans can think of in the same way.

We do not find among the newer voices any that satisfy such a desire. Mr. Moody and Mr. Lodge are not yet eclipsed. Earlier singers like James Whitcomb Riley and Josephine Preston Peabody, though they have published no poems during the year, are not outsung. Of those familiar to us George E. Woodberry (Merrymount Press) publishes three poems full of the vitality of a vision that sees through the chaos of the contending moment. Madison Cawein in *The Republic* (Stewart & Kidd) expresses his old feeling for nature in new forms, some of them of his very best. Clinton Scollard in *Lyrics from a Library* (George William Browning) reminds older readers of a time when *vers de société* was more popular than now. His latest work adds to his earlier reputation for clever brilliancy a ripened tenderness that comes with years. Bliss Carman's *Echoes from Vagabondia* (Small, Maynard & Co.) are really echoes of the earlier voice which made the poet well known. There are some whose work appears for the first time in book form. Mr. Benét's *Merchants from Cathay* (Century Co.) is a volume of poems well indicated by the name, for his imagination wanders in the strange exotic lands of romance, though his verse is willing to bind itself by the ordinary laws of present poetry. Mrs. C. R. Robinson, on the other hand, in *The Call of Brotherhood* (Scribners), keeps close at home, her work being distinguished by evident sincerity and deep feeling. Miss Fanny Stearns Davis is still different. In *Myself and I* (Macmillan) she shows a sentiment of poetic intuition, a feeling for the significant in a world of beautiful phenomena that is most individual. Kenneth Rand in *The Dirge of the Sea* (Sherman, French & Co.) has felt the call to wander over the road and across the wave and has the gift to make us feel it. If we did not confine our view to collected poetry, we should mention much more. In the drama we have relatively, at least, more action of imagination, though very little of it appears in book form. Josephine Preston Peabody's *The Wolf of Gubbio* is a dramatic rendering of one of the legends of St. Francis. The wolf is a real wolf which has stolen a child, but is led by the saint to bring him back. It is a subject well fitted for the delicate and imaginative work of the poet. George Middleton's *Tradition* (Holt), on the other hand, is a collection of one-act plays of contemporary life. The plays are passionate crises in life, generally arising from the power of tradition in convention. They are quite as strong as *Embers*, by which Mr. Middleton first became known to lovers of literature.

Essays and Criticism.—Among the books which might be variously classified as essays or criticism the most important is Paul Elmer More's *The Drift of Idealism* (Houghton, Mifflin Co.). This volume has the qualities of learning and judgment which have become familiar through the earlier volumes of the "Shelburne Essays," but in this case the studies are carefully planned to present a single topic, namely, Romanticism, something in which it need hardly be said Mr. More wholly disbelieves. Neither does Irving Babbitt, whose *Masters of Criticism* (Houghton, Mifflin Co.) is an excellent presentation of the chief French critics of the 19th century. It is chiefly valuable, however, because of the author's own critical view, which is strongly anti-romantic, and presents the author as a judicial critic of superior training and power. Max Eastman's *The Enjoyment of Poetry* (Scribners) is another good piece of criticism, a book full of perceptive appreciation, discrimination, which is meant to give and does give, not an analysis of a psychologic state, but an incentive to artistic pleasure. A contrast with the foregoing books is Gerald Stanley Lee's *Crowds* (Doubleday, Page & Co.), a study of the world in general, or more particularly of democracy, in the now familiar manner of its author. Hamilton Mabie's *American Ideals* (Macmillan) is a series of lectures on America delivered before Japanese audiences. The nature of the occasion called for a certain simplicity, but it allowed many general views and summaries which make the book rather an unusual review and history of American culture. Oscar Straus's *The American Spirit* (Century Co.) is not a connected treatment, but a

collection of articles and addresses by a man who has great gifts of ability and character and great opportunity to use them. Mr. Straus is a public man of the highest type; the present volume deals with a variety of topics which his broad experience has given him a chance to study. Helen Keller's *Out of the Dark* (Doubleday, Page & Co.) contains the author's thoughts on the position of woman and her education, the possibility of preventing blindness and of educating those whose blindness has not been prevented. Theodore Roosevelt's *History as Literature and Other Essays* (Scribners) includes four noteworthy utterances, the author's addresses at the Sorbonne and before the University of Berlin, the University of Oxford, and the American Historical Association, as well as a number of articles that have appeared in periodicals. It need not be said that the author by no means shows himself the scholar of the university. Rather is he the scholar who has learned to know the world, who returns with information for his whilom brethren. We may add note of a few works more specifically critical. The current interest in the drama takes form not only in creative work, but in such studies as Charlton Andrews' *The Drama of To-day* (Lippincotts) an excellent general view; Archibald Henderson's *European Dramatists* (Stewart & Kidd), a book showing wide reading and excellent judgment; C. Weygandt's *Irish Plays and Players* (Houghton, Mifflin Co.), a careful study of a timely subject; Elizabeth R. Hunt's *The Play of To-Day* (Lane), a theoretical book very practically illustrated; and Brander Matthews' *Shakespeare as a Playwright* (Scribners), which gives a view of this topic at once scholarly and practical.

Travel and Description.—There have been fewer notable books of travel than usual. Mr. Howells' *Familiar Spanish Travels* (Harpers) has not merely the observation of an interesting phase of life as seen through an interesting temperament, which one always finds in Mr. Howells, but also much of the matured wisdom which comes of living in a large way. Stewart Edward White's *African Camp Fires* (Doubleday, Page & Co.) is more than a mere record of travel. His narration of fact has much of the charm of his fiction, not that his imagination alters conditions, but that he imparts an element of humanity into whatever interests him. Somewhat like it, but really very different is Arley Munson's *Jungle Days* (Appletons), an account of the experiences of an American missionary doctor in India. Most interesting of all in topic is Belmore Browne's *Conquest of Mount McKinley* (Putnams), though the book is really much more than an account of a great achievement, because it gives so much of the human temper which made the achievement at once difficult and possible. Another book of the great Northwest is Stanley Washburne's *Trails, Trappers and Tenderfeet* in western Canada (Holt), a well written and illustrated account, full of the spirit of muskeg and mountain.

MODERN LANGUAGES AND LITERATURE

GERMANIC LANGUAGES

DANIEL B. SHUMWAY

German Fiction and Drama.—The chief interest of the year in this field has centered around the translation of Gerhard Hauptmann's novel, *Atlantis*, which appeared toward the close of 1912. It was the subject of many reviews, and gave rise to investigations concerning the events described. Thus Rudolf Tombo, Jr., in *Modern Language Notes* for January, traces some of the scenes to the author's experiences in America. In the same number Professor Tombo discusses the identity of the *Hassenpflugs* in Hauptmann's earlier novel, *The Fool in Christ*, and tries to prove that they were modeled on the brothers Heinrich and Julius Hart, who played an important rôle in the literary revolution of the early nineties. Hauptmann's grotesque festival play, written in the style of an old puppet play, with strong resemblances to Goethe's *Faust*, has been the subject of an animated discussion because of its being prohibited by the German Crown Prince after a few performances in

Breslau. An account of it will be found in the *Outlook* for July and in *Current Opinion* for August. The January number of the latter magazine also has an article on Hauptmann as the greatest German playwright since Goethe. Hauptmann's dramas have appeared in translation in two volumes by Ludwig Lewisohn. Excerpts from C. Rössler's *Five Frankforters*, an admirable play dealing with the Rothchilds, are given in *Hearst's Magazine* for Sept., 1913.

Ernst Hardt's beautiful verse drama, *Tristan and the Jester*, has been translated by John Heard, Jr.; and *Professor Bernhardi*, an amusing comedy of the Austrian dramatist Arthur Schnitzler, has been translated and adapted by Mrs. Emil Pohl. The relation of another Austrian dramatist, Hoffmannsthal, to Greek tragedy in his tragedies *Electra* and *Œdipus*, has been ably discussed by George W. Baker in the *Journal of English and German Philology* (XII, 383-406). The dramatic art of Max Halbe is treated by Charles Norris in *Modern Language Notes* for June. Most interesting are the articles of A. von Ende upon German drama, in the *Nation* of Jan. 2 and July 17. The author discusses Hauptmann's *Gabriel Schilling's Flucht*, Fulda's latest drama, *Der Seeräuber*, a romantic comedy in verse, Carl Hauptmann's play, *Die lange Jule*, and a number of other playwrights and their plays.

In the field of the novel the most noteworthy publications are *Similde Hegewalt*, a character study by Beyerlein, the author of *Jena und Sedan*, and a novel by Clara Viebig, translated under the title *Son of his Mother* by H. Raahauge. Hauff's *Caravan Tales* have been freely adapted and retold by J. G. Hanstein. W. W. Florer has an interesting note on Gustav Frenssen in *Modern Language Notes* for May, reviewing Elster's life of Frenssen and illustrating it with data supplied by Frenssen himself in a letter to Florer. Two valuable bibliographies have been published, one by Rudolf Tombo, Jr., on recent German fiction, in *Modern Language Notes* for April, another on important German dramas since 1871 in the New York *Times*' "Review of Books" of Feb. 16. A well written article by Dorothea Gerard, on *Recent German Fiction* in *The Nineteenth Century* for Sept, 1913, deals with the latest novels of Baroness von Heyking (*Ille Mihi*), of Walter Bloem (*Volk wider Volk*) and of Alfons Paquet (*Kamerad Flemming*).

Among the classical writers Goethe, as usual, holds the center of interest. Günther Jacoby, who made an interesting attempt a few years ago to prove that Herder served as the model for *Faust*, examines in the *Journal of English and German Philology* (XII, 1-19) Burdach's argument to prove that *Faust* was modeled on Moses and concludes that not the living but the dying *Faust* shows traits taken from Moses and to a greater extent than Burdach suspects. G. Schaafs discusses (*ibid.*, 20-31) a few "Faust Paralipomena," and W. Page Andrews has added another to the long list of *Faust* commentaries by a work entitled *Goethe's Key to Faust, a Scientific Basis for Religion and Morality*. Goethe's autobiography has been retranslated by Minnie S. Smith as *Poetry and Truth of my Own Life* for Bohn's Popular Library. P. H. Brown has published a volume on the *Youth of Goethe*. A. Baumgarten has issued a life of Goethe in German (*Goethe, sein Leben und seine Werke*). Hamilton Mabie discusses the attitude of the twentieth century toward Goethe in the *Outlook*, Sept. 27, 1913, under the caption, *The Young Goethe*. The sources of two of Goethe's poems, *Das Blutlied* and *Mignon*, are investigated by G. Schaaf in *Modern Language Notes* for February and March.

W. C. Hilmer has published a book on *Rime in Schiller's Poems*, and C. M. Newport, of the University of Wisconsin, has written on *Woman in the Thought and Work of Hebbel*. Francis W. Kracher has discussed Lessing's theory of pity in *Modern Language Notes* for May, showing that it differed from Aristotle's and still has a value for our times.

German Philology.—In this field, which includes the literature of the older periods, E. Classen has discussed *Vowel Alliteration in the Old Germanic Languages* (Longmans). A *Wörterbuch und Reimverzeichnis zu*

dem Armen Heinrich von Hartmann von Aue, by Guido C. Riemer, has appeared as Number 3 of the "Hesperia Series." As Number 4, B. Q. Morgan discusses *Nature in the Middle High German Lyrics*. Myrtle M. Mann treats of "*Die Frauen und die Frauenverehrung in der Höfischen Epik nach Gottfried von Strassburg*" in the *Journal of English and German Philology* (XII, 355-387). W. F. Luebke investigates the "Language of Berthold von Chiemsee" in his *Tewtsche Theologey* of 1528, in *Modern Philology* (X, 207-263). Arthur T. J. Remy treats of the "Origin of the Tannhäuser Legend" in the *Journal of English and German Philology* (XII, 32-77), showing that it is a combination of a Celtic myth and a Christian legend which has been developed in Germany. The *Nibelungenlied* has again been translated, this time by Arthur S. Way under the title *Lay of the Nibelung Men* (Putnam). Jessie L. Weston's admirable translation of *Parzival* has been reprinted from the edition of 1884.

German Texts and Teaching.—There has been as usual considerable activity in the production of school texts, but only two editions of important dramas can be mentioned here. They are both by Grillparzer, the one *Libussa*, edited with an introduction by G. O. Curme (Oxford), the other *Des Meeres und der Liebe Wellen* by Martin Schütze (Heath).

In pedagogy Charles H. Handschin has published an extensive treatise on the "Teaching of Modern Languages in the United States" as Bulletin 3 of the *U. S. Educational Bureau*. The importance of phonetics in teaching German is pointed out by E. Prokosch in the *Transactions* of the National Education Association for 1912 (p. 733). C. A. Krause discusses the "Trend of Modern Language Instruction in the United States" in the *Educational Review* for March, and M. D. Learned advocates the introduction of German into the grade schools in the *German-American Annals* for January-April.

German-American Relations.—This ever-growing field is represented by a number of interesting works and articles. Preston A. Barba continues his study of Friedrich A. Strubberg's life and novels in the *German-American Annals* for May and contributes an article on the "American Indians in German Fiction" to the same number. Charles Brede also continues his studies of "German Drama on the Philadelphia Stage" by treating the period from 1812 to 1815 (*ibid.*). W. Scholl shows the influence of Schiller's "*Lied von der Glocke*" on Longfellow's "Building of the Ship" and other poems, in *Modern Language Notes* for February. Otto Lohr has written on the *German Element of New Netherland* (Stechert), and O. Lohan on *Das Deutschtum in den Vereinigten Staaten von Amerika* (Steiger). Adolf Rambeau has published studies on the culture of this country under the title *Aus und über Amerika* (Stechert). *Deutsch-Amerikanische Gedichte* is the title of a volume of verse by M. Raible.

Swedish.—The interest in Strindberg is still well sustained. Edith and Warner Oland have continued their translations of his plays by issuing *Comrades, Facing Death* and *Easter*. *The Confessions of a Fool* has been translated by Ellie Schleussner, *Lucky Peter* by Velma S. Howard, *On the Seaboard* by Elizabeth C. Westergren, *Son of a Servant, The Inferno, Zones of the Spirit* by Clarence Field, and *Married*, twenty stories of married life, by Ellie Schleussner. Estimates of Strindberg and his works will be found in the *Nation* for July 17, in the *Living Age* for Feb. 22 and in the *Dial* for Jan. 16. A Swedish life of the Swedish essayist Ellen Key by Nyström-Hamilton has been translated by Anna Fries, with an introduction by Havelock Ellis. It is rather unfavorably reviewed in the *Varien* of Sept. 11, 1913. Ellen Key's essay on Rahel Varnhagen, the most brilliant of the coterie of literary Jewesses of Berlin in the early nineteenth century, has been translated by A. G. Chater, with an introduction by Havelock Ellis. Gustaf Janson's *Lognerna* has been done into English under the title *Pride of Man*. An estimate of the novels of Selma Lagerlöf will be found in *Living Age* for May.

Norwegian.—This language is represented mainly by the plays of Björnsen and Ibsen. Thus Ed. Björkman

has translated *The Gauntlet, Beyond Our Power,* and *The New System;* and three comedies have been rendered by R. F. Sharp, all by Björnsen. Ibsen's drama *The Warrior's Mound* and its relation to the author's romantic tales are discussed by A. M. Sturtevant. His lyrics and *Brand* have been translated by F. E. Garrett. Indridi Einarsson's five-act drama *Sword and Crozier* has been added to the list of the "Poet Lore" plays by Lee M. Hollander. *Norse Fairy Tales* have been rendered and edited by Geo. N. Dasent (Lippincotts). Recent Scandinavian books are discussed by A. Kildal in the *Nation* of April 3.

In the field of Old Norse W. A. Craigie has prepared a volume of *Icelandic Sagas* for the "Cambridge Manuals of Science and Literature" (Putnams). A. LeRoy Andrews has continued his studies in the *Old Norse Sagas* in *Modern Philology* for April. K. A. Mortensen's *Handbook of Norse Mythology* has been translated from the Danish by A. C. Crowell. Prof. Geo. T. Flom has contributed "Semiasological Notes on Old Scandinavian Flík" in the *Journal of English and German Philology* (XII, 78-92). J. A. Holvik has published a *Second Book of Norse Literary Selections.*

Danish.—In this field we greet with great satisfaction the revival of the plays of Ludwig Holberg, the famous Danish dramatist of the early eighteenth century, who influenced among others the youthful Lessing. Three of his comedies have been translated by H. W. L. Hime under the titles, *Henry and Pernille, Captain Bombastis Thunderton,* and *Scatterbrain.*

ROMANCE LANGUAGES AND LITERATURE

BENJAMIN P. BOURLAND

The scientific activity of American scholars in the Romance languages has of late years been devoted principally to French and Spanish. Investigation in these fields has continued keen in 1913, while it may be put down as the capital event of the year, that Italian has received in large measure the attention it deserves. Aside from a number of smaller pieces of research, we note the publication in the field of Italian literature of three important books: Professor McKenzie's *Concordance to Petrarch;* Professors Rand and Wilkins' *Concordance to the Latin Works of Dante,* and the volume of the *Paradiso,* which completes Professor Grandgent's edition of the *Divina Commedia.* In French, the study of the mediæval epos has flourished as usual, and Professor Borgerhoff, in another line, has made an important contribution to the history of the relations of English and French literature in the eighteenth century. In Spanish, Miss Bushee's discerning and reprinting of the *Sucesos of Mateo Alemán* is a telling contribution to the history of prose fiction. Dr. Bacon's study of Juan Pérez de Montalván and Professor Lancaster's book on Pierre du Ryer both claim the attention of students of the theatre, as will Miss Smith's work on the *commedia dell' arte.*

In the world field there is no great change to set down. The most important publication is the rapid appearance of Professor Meyer-Lübke's *Romanisches Etymologisches Wörterbuch,* whereof the half already issued proves that when it is done, it will supersede all predecessors.

Necrology.—Gustav Koerting died at Kiel on Feb. 3 at the age of 67. He was one of the most widely known of Romance scholars and had devoted most of his energy to the encyclopædia of his subject. He edited the *Französische Studien,* founded, with the late Professor Koschwitz, the *Zeitschrift für Französische Sprache und Literatur;* published a *Handbuch der romanischen Philologie;* and was best known for his *Lateinisch-Romanisches Wörterbuch,* which though open to severe criticism, and always severely criticized, has been for twenty years an indispensable companion to every Romance philologist. Carl Wahlund, honorary professor in the University of Upsala, died on April 23 at the same age. He was the author of many studies, mostly in French Literature, and the collector of a fine library, which before his death he gave to the University of Upsala. Among his works are editions with Hugo von Feilitzen, of

the *Enfances Vivien;* and of the French prose version of the *Voyage of St. Brendan.*

Arturo Graf, professor in the University of Turin, died in the last week of April. He was born in Athens in 1848, and was one of the most widely known scholars of the world in the folklore of the Middle Ages. His best known works are *Miti, Leggende e Superstizioni del Medio Evo; Attraverso il Cinquecento.* Count Angelo de Gubernatis died in Rome on Feb. 26. He was born at Turin in 1840, was professor, first, in Florence at the Istituto di Studi Superiori, since 1891 in the University of Rome. Among his very numerous works we note the *Storia Universale della Letteratura,* and a series of volumes on mythology.

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ENGLISH LANGUAGE AND LITERATURE

C. G. CHILD

The following summary of American activity in the study of English can in the space available merely indicate the general trend of scholarly activity during the year without attempting to include numerous texts, reviews and minor articles even though often of great technical value.

A volume of papers contributed by colleagues and pupils of George Lyman Kittredge was issued (Ginn) in commemoration of his completion of 25 years of service in Harvard University. A review of its contents, covering a wide range of subjects, is not possible here, but it is pleasant to record this just tribute to a great teacher, a master in many fields as well as his own, an inspiration to all who seek his aid, both in the scientific study, and in the appreciation, of literature.

Other works of general reference are Schelling's *English Lyric* (Houghton, Mifflin Co.), Brander Matthew's *A Study of the Drama* (Houghton, Mifflin Co.), and Bryton's *London in English Literature* (University of Chicago).

Philology.—Curme has continued his fruitful investigations in the field of syntax (*Journal Eng. and Germ. Phil., Mod. Lang. Notes, Publ. Mod. Lang. Assoc., Eng. Stud.*), and is awakening profitable discussion in Germany. The exhaustive monograph of Callaway (Carnegie Institution) on *The Infinitive in Anglo-Saxon* promises to rank as a monument of American scholarship. Other articles, always few, in this field are Kenyon's "An Idiomatic Order of Words" (*Mod. Lang. Notes*) and Krapp's suggestive "Standards of Speech and their Values" (*Mod. Phil.*).

Old English Period (449-1150.—Among more notable contributions may be instanced Bright and Ramsay's *Notes on the "Introduction"* to *the WS. Psalms* (Clarendon Press), Klaeber's welcome edition of texts relating to the "Fall of Man" (Heidelberg), his papers on Beowulf (*Ang-*

lia), Belden's article on the same poem (*Mod. Lang. Notes*), Cook's discussion of the dates of the Ruthwell and Bewcastle crosses (Yale Press), Williams' monograph on *Gnomic Poetry* (Columbia Press), Tupper's striking article on *Deor*, and on the British Museum transcript of the Exeter Book (both in *Anglia*), various notes on old English poems by Tupper and Klaeber (*Jour. Eng. and Germ. Phil.*), and Miss Fisk's paper on "Animals in Early English Ecclesiastical Literature" (*Publ. Mod. Lang. Assoc.*), which links this period with the next.

Middle English Period (1150-1500).—Booker's *Middle English Bibliography* (Heidelberg), though unavoidably incomplete, will be of material assistance. Helpful original investigations are Miss Sandison's *Chansons d'Aventure in Middle English* (Bryn Mawr Monographs), Cross on the "Chastity-Testing Horn and Mantle" (*Mod. Phil.*), Miss Hammond's article on the *Prologue* to Lydgate's *Story of Thebes* (*Anglia*), and Root's discussion of the methods of mediæval publication (*Publ. Mod. Lang. Assoc.*). Miss Rickert's paper on John Bret (*Mod. Phil.*) revives the discussion of the multiple authorship of *Piers Plowman*. Emerson's review (*Mod. Lang. Notes*) of Bateson's edition of *Patience* is of positive constructive value. Sommer continues his publication of the *Vulgate Version of the Arthurian Romances* (Carnegie Institute). Cady writes on the "Wakefield Group in the Towneley Cycle" (*Jour. Eng. and Germ. Phil.*).

Continued devotion to the study of Chaucer, in the success of which for many years America may take pride, is attested by the articles of Karpinksi (*Mod. Lang. Notes*), Hulbert *Mod. Phil.*), *Shannon* (*Publ. Mod.* Emerson (*Romanic Review, Mod. Phil.*), Tatlock (*Anglia, Jour. Eng. and Germ. Phil.*), S. Moore (*Anglia, Mod. Phil.*), Shannon (*Publ. Mod. Lang. Assoc.*), and the monographs of Hulbert (University of Chicago) and Fansler (Columbia Press), while Tupper's article in the *Nation* announces an epoch-making discovery in relation to Chaucer's design in the *Canterbury Tales*.

Modern English (1500-date).—In the early 16th century may be noted Lois Borland's essay on Montgomery (*Mod. Phil.*). Less work seems to have been done in the Elizabethan field than usual. Spenser is the subject of articles by Baskervil (*Pub. Mod. Lang. Assoc.*), Reed Smith (*Mod. Lang. Notes*), *Graham* (*ibid.*), Padelford (*Mod. Phil.*) and of a monograph by Higginson (Columbia). Cunliffe has published his important edition of *Early English Classical Tragedies* (Clarendon), and Boyer's most interesting volume on *The Villain as Hero in the Elizabethan Drama* (Routledge). Articles upon Shakespeare include H. S. V. Jones (*Mod. Lang. Notes*), Adams (*ibid.*), Northup (*Jour. Eng. and Germ. Phil.*), Stoll (*Mod. Phil.*), Darzan (*Mod. Phil.*), Newcomer (*Mod. Phil.*), Gray (*Jour. Eng. and Germ. Phil.*), Moriarty, (*Mod. Phil.*), and Tupper (*Publ. Mod. Lang. Assoc.*), as well as several on the sonnets. Jonson is the subject of a monograph by Judson (*Yale Studies*) and an interesting note by McDaniel (*Mod. Lang. Notes*). Other monographs and articles are: on Heywood by Miss Bates (*Jour. Eng. and Germ. Phil.*) and Graves (*Mod. Phil.*); Richard Brome, by Andrews (*Yale Studies*); Decker and Ford by Pierce (*Anglia*); *The Arraignment of Paris* by Graves (*Mod. Lang. Notes*); "The Broken Heart" by Baskervil (*ibid.*); "The Late Lancashire Witches" by Andrews (*ibid.*). An unusual number of articles have appeared on Milton, by Friedland, Gilbert, Lockwood, Nicholson and Hart (all in *Mod. Lang. Notes*) and by Thompson (*Publ. Mod. Lang. Assoc.*). Other notable contributions on the literature of the 17th and subsequent centuries are those of Miss Hughes on Vaughan (*Mod. Lang. Notes*); Scheurer, "The Town Shifts," 1671 (*Anglia*); Heinzelmann and Griffith on Pope (*Mod. Phil.*); Croissant on Cibber (*Kansas Humanistic Studies*); Tieje on "Realism in Pre-Richardsonian Fiction" (*Publ. Mod. Lang. Assoc.*); Trent on Defoe (*Cambridge History*); two articles by Welles on Fielding (*Publ. Mod Lang. Assoc., M. L. N.*); Morton on the "Spenserian Stanza in the 18th Century" (*Mod. Phil.*); Chew on

Byron and Croly (*Mod. Lang. Notes*); Fuess's monograph on "Byron as Satirist" (Columbia Press); Phelps on "Browning in Germany" (*Mod. Lang. Notes*). Interesting examples of the oral tradition of old ballads in America are given by Belden (*Jour. of Am. Folk-Lore*), by Woods (*Mod. Lang. Notes*) and by Carrie A. Harper (*ibid.*). An important contribution to the history of contemporary literature is Cornelius Weygandt's *Irish Plays and Playwrights* (Houghton, Mifflin Co.).

Necrology.—William Hande Browne died Dec. 13, 1912, in his 84th year. A devoted student of English literature in general, a specialist in Early Scottish literature, his modesty prevented adequate recognition of his wide and accurate knowledge. He will be gratefully remembered by his students, many of whom, owing to the gentleness and quietness of his method of instruction, often not till long after learned to realize how much they owed to his teaching and example.

ANCIENT LITERATURE AND PHILOLOGY

ANCIENT LITERATURE

(*Additions from Papyri*)

CLIFFORD H. MOORE

The most important collection of literary and theological papyri to be noticed this year is that contained in the first volume of the publications of the Società Italiana per la ricerca dei Papiri greci e latini in Egitto, edited by Professor Girolamo Vitelli under the title *Papiri Greci e Latini* (Firenze, 1912), which appeared too late for review in the YEAR BOOK for 1912. Of the 112 numbers, 31 are theological or literary. The most of these call for no particular notice, and none is of such great interest as a number which have been published in recent years.

Theological Fragments. — Of the biblical fragments, Number 2, a piece of a parchment codex of the fourth century containing Luke xxii, 45-47, 50-53, is of importance to scholars as it omits verse 51, thus possibly lending some support to the suspicions of Weiss that the original text of Luke has been expanded at this point. Number 6, fragments of the *Protevangelium* of James, is not especially valuable so far as the text is concerned, save that the passages here given tend to favor the view that the work is a unit, but the date of the fragments, the fourth century, disproves the claims of certain scholars who have held that the work originated in the fifth or sixth century. Valuable also are the two scanty fragments, Number 7, of the *Apocalypse of Elias*, which has been hitherto known in the Coptic versions. Another fragment, Number 65, of the sixth century, seems to contain scholia to a medley of biblical texts, the relation between which is obscure. A portion of a roll, Numbers 26 and 27, makes welcome additions to the scanty hagiographic papyri. On the *recto* is a part of the legend of Saint Paphnutius and the *verso* gives us a similar part of the story of Saint Christina. The latter belongs to a Greek version older than any hitherto known to us, apparently to that from which the Latin version was made.

Greek Classical Texts.—Most of the literary fragments contain parts of extant works and add little to our knowledge. New are two fragments of comedies, Numbers 99 and 100, but the lines cannot be satisfactorily restored or assigned. A leaf of the third century, Number 17, contains six sepulchral epigrams celebrating the virtues of an unknown Euprepius to whom his daughter erected a monument. The verses have slight literary merit; many phrases can be paralleled from Kaibel's collection. They have many corrections and alternate versions between the lines in the original hand. Two fragments, Numbers 19 and 85, give us glimpses of ancient schools, for they belonged to pupils' note books. The first contains elementary notices relating to the Trojan War, while the second gives a detailed description of a *chreia*.

Latin Classical Texts.—Papyri containing Latin works are rare, but this volume brings us three bits, Numbers 20, 21 and 110, from Cicero, *In Verr.*, act. 1, l, Vergil, *Aen.*, iv, 66-

68, 99-102, and Sallust, *Bell. Cat.*, 10-11. The lines from Cicero tend to confirm the text in two places against the charge of interpolation which the learned have brought, but otherwise have no value. The fragments of Vergil and of Sallust show that they were prepared for Greeks learning Latin, for the latter has marks of quantity and a number of interlinear Greek glosses, one of which is incorrect apparently; the former also has the long quantity marked several times as well as accents indicating the prose, not the verse, accent. These remind one of *Oxyr. Pap.* 1099 and *Pap. Rylands* 61, which were noticed in the YEAR BOOK for 1911 (p. 776).

Mention should be made of th handy volume published by Dr. A. S. Hunt in the "Oxford Classical Texts" under the title *Tragicorum Graecorum Fragmenta Papyracea nuper reperta.* It contains the *Indagatores, Eurypylus* and *Achaeorum Conventus* of Sophocles, the *Hypsipyle, Cretes,* and *Melanippe Vincta* of Euripides, and certain anonymous satyric fragments. Finally it should be noted that Alfred Körte has begun a review in the *Archiv für Papyrusforschung* (V, pp. 531 ff.) of all the literary texts published during the past six years.

GREEK LITERATURE

WILLIAM ARTHUR HEIDEL

The *American Journal of Philology,* the *American Journal of Archæology, Classical Philology,* and the other periodicals mentioned in the YEAR BOOK for 1910 (p. 162), continue the publication of excellent articles on a wide variety of subjects. Especially to be noted of the output of 1913 are: Professor Bolling's "Contributions to the Study of Homeric Metre," part II, in the *American Journal of Philology;* the continuation of Buckler and Robinson's "Inscriptions from Sardes," II and III. Professor Robinson's "Inscriptions from the Cyrenaica," and W. B. Dinsmoor's "Attic Building Accounts," I-III, in the *American Journal of Archæology;* Professor Buck's "Interstate Use of the Greek Dialects," Professor Scott's "Paris and Hector in Tradition and in Homer" and "The Assumed Duration of the War of the *Iliad,*" and Professor Flickinger's "Tragedy and the Satyric Drama," in *Classical Philology;* Professor Adams's "Are the Political Speeches of Demosthenes to be Regarded as Political Pamphlets?" Professor Baker's "Some of the Less Known MSS. of Xenophon's *Memorabilia,*" and Professor Hewitt's "On the Development of the Thank-offering among the Greeks," in the *Transactions of the American Philological Association.*

Of books intended for the literary public the year has not been prolific. Perhaps Professor Harmon's excellent edition of Lucian in the "Loeb Classical Library" deserves especial mention as one of the best fruits of this great undertaking. Prof. Milton W. Humphreys has rendered in his admirable edition of *Demosthenes On the Crown* a labor of love which bears eloquent witness to the vitality of classical studies. In "An Athenian Critic of Life" (*Yale Review,* April, 1913) Professor Goodell presents a sympathetic study of Sophocles. The writer published in the *Proceedings of the American Academy of Arts and Sciences* (May, 1913) a series of studies entitled *On Certain Fragments of the Pre-Socratics: Critical Notes and Elucidations.* American scholars have in recent years published some of their best work in foreign periodicals; thus, Prof. H. W. Prescott's "ΕΒΑΡΟΟΝ" (Theocritus, *id.*, I, 139, 140) appeared in the *Classical Quarterly* (July, 1913). Among archæological publications may be mentioned Dr. G. W. Elderkin's *Problems in Periclean Building* and Edith H. Hall's *Excavations in Eastern Crete; Sphoungaras.*

The year has brought forth few doctoral dissertations on Greek subjects: among them we may note Lilly Ross Taylor's *The Cults of Ostia* and Mary Hamilton Swindler's *Cretan Elements in the Cults and Ritual of Apollo* (both of Bryn Mawr), Dr. Donald B. Durham's *The Vocabulary of Menander Considered in its Relation to the* Κοινή (Princeton), and Dr. George M. Calhoun's *Athenian Clubs in Politics and Litigation* (Chicago). The last-mentioned is an exceptionally full and valuable study of an interesting phase of ancient life.

As usual, much good work is done in the reviewing of the most notable books. Such reviews appear not only in the classical periodicals, but also in those of a more general character, such as the *Nation*, and in journals devoted to related special subjects, such as the *Philosophical Review*. Among the classical periodicals the *American Journal of Philology* publishes the fullest and most detailed reviews. The *Transactions and Proceedings of the American Philological Association* publish annually a fairly complete bibliography of the members of the Association for the preceding year.

Greek studies in America should receive added impetus from the honor conferred upon one of their most brilliant exponents in the appointment of Prof. Paul Shorey to the Roosevelt Professorship at the University of Berlin for the year 1913-14. While the selection was doubtless directly a personal tribute, indirectly it testifies to the breadth of classical culture in that the appointee is required to lecture on subjects relating to American life and institutions.

LATIN LITERATURE

CHARLES KNAPP

Owing to the conditions of publication in the United States, American work in Latin literature and kindred fields consists largely of articles in periodicals,[1] and in the volumes of studies in classical philology brought out under the ægis of learned societies or various universities. In 1913, however, appeared a notable book, an edition of Tibullus, with elaborate introduction and notes, by K. F. Smith. This, the first thoroughgoing and complete edition of Tibullus published in America, is likely long to remain the definitive edition of that author. *Roads from Rome*, by Anne C. E. Allinson, is an interesting group of essays on Catullus, Propertius, Horace, Ovid and his wife, etc.

Contributions to the study of various authors have been made in the following articles: "Catullus Carmen 2," by E. W. Fay (*CP.*, VIII, 301-309), a defense of the substantial integrity of this poem as it stands; "Cicero the Stylist: An Appreciation," by G. Showerman (*CJ.*, VIII, 180-192); "Was Cicero Successful in the Art Rhetorical?" by J. E. Granrud (*CJ.*, VIII, 234-243); "The Ferentinum of Horace," by W. B. McDaniel (*TAPA.*, XLIII, 67-72), which identifies the Ferentinum of Horace, *Epistles* 1, 17, 6-8, with a hamlet of that name near the Aqua Ferentina and Lucus Ferentinae, in the Alban region, where the cities of the Latin League used to hold their general assemblies; "Lucilius on EI and I," by R. G. Kent (*AJP.*, XXXIV, 315-321), a continuation of a discussion by the same author and E. W. Fay of various passages in Lucilius, and so of value to the student of Latin literature; "The Creation Story in Ovid Metamorphoses," by F. E. Robbins (*CP.*, VIII, 401-414), an argument that Ovid's source is to be found, not in any specific author, Greek or Roman, but in the general teaching of the Stoics, familiar to every educated Roman in Ovid's time; "The *Amphitruo* of Plautus," by H. W. Prescott (*CP.*, VIII, 14-22), an argument that there is in this play a change of scene, from the space before the house of Amphitruo to the harbor; if so, the play has another claim to distinction as a play unique, since changes of scene are very rare in extant Greek and Roman tragedy and comedy both, outside of Aristophanes; "The Composition of the *Rudens* of Plautus," by Cornelia C. Coulter (*CP.*, VIII, 57-64), who sees evidence of *contaminatio*, or the combination of materials got from two (Greek) plays, which, in this case, were laid in different places; "Suetonius and his Biographies," by J. C. Rolfe (*Proceedings of the American Philosophical Society*, LII, 206-225); "A Manuscript of Jerome's *De Viris Illustribus* belonging to the General Theological Seminary," by W. H. P. Hatch (*HS.*, XXIII, 47-70); "The Dialogue of Tacitus," by W. Peterson (*AJP.*, XXXIV, 1-14), dealing with the manuscript history of the work, which called forth a reply from

[1] Periodicals are cited in this article under the following abbreviations: *AJP., American Journal of Philology; CJ., Classical Journal; CP., Classical Philology; CW., Classical Weekly; HS., Harvard Studies; TAPA., Transactions of the American Philological Association.*

A. Gudeman (*ibid.*, 243-246); "The Tragedy of Dido," by H. H. Yeames (*CJ.*, VIII, 139-150, 193-202). Two papers on Horace, "Horace's View of the Relations between Satire and Comedy," by H. R. Fairclough (*AJP.*, XXXIV, 183-193), and "Horace, *Epistles*, II, i, 139 ff. and Livy, VII, 2," by C. Knapp (*TAPA.*, XLIII, 125-142), are part also of the discussion of the Roman tradition that there was in early times a form of the Roman drama called *Satura;* to the same discussion belongs "Satura and Satire," by B. L. Ullman (*CP.*, VIII, 172-194), which proposes an excellent explanation of the puzzling word *satura* and discusses the use of that word in Latin writers.

Two papers dealt with prose rhythm: "Preferred and Avoided Combinations of the Enclitic *Que* in Cicero," by F. W. Shipley (*CP.*, VIII, 23-47) and "*De Clausulis a Flavio Vopisco Adhibitis*," by Susan H. Ballou, published abroad.

The tendency, strong in recent years, to trace the influence of the classics on later literatures, is seen in *The Classical Origin and Tradition of Literary Conceits*, by M. B. Ogle (*AJP.*, 34, 125-152), and *Classical Traditions in Early German and Romance Literature*, by the same author (*Mod. Lang. Notes*, December, 1912). Here, too, mention may be made of *Further Notes on Sicilian Translations of the Twelfth Century* (translations from the Greek into Latin), by C. Haskins (*HS.*, 23, 155-160).

Recently much work has been done in translating classical authors into English. Of foremost interest here is the "Loeb Classical Library" (of translations), to which many American scholars are under pledge to contribute, though none has in fact done so as yet, in Latin. A book entitled *Cato and Varro: The Treatises on Roman Farm Management done into English, with Notes of Modern Instances, by a Virginia Farmer*, is of interest, because Cato had not been done into English, but unfortunately the author's enthusiasm is not matched by sound understanding of the Latin originals.

This article may well close with a notice of papers and books in fields more or less directly ancillary to the study of Latin literature. Webster's *Ancient History*, with a companion volume, *Readings in Ancient History*, has been well received. In "A Roman Astrologer as a Historical Source: Julius Firmicus Maternus" (*CP.*, VIII, 415-435), Lynn Thorndike seeks to show that in Firmicus's work we have a clear and faithful picture of society in his time. We may note also "On the Legality of the Condemnation and Trial of the Catilinarian Conspirators," by G. W. Botsford (*CW.*, VI, 130-132), and "The Prosecution of Cataline's Associates," by R. W. Husband (*CJ.*, ii, 4-26).

In lexicography we may note *Index Verborum Catullianus*, M. N. Wetmore, which well continues the same author's masterly *Index Verborum Vergilianus* (1911); for reviews of these books, by G. Lodge and C. Knapp, see *CW.*, VI, 101-103, 109-111, 124.

In Latin grammar, of papers contributory to an understanding of Latin authors mention should be made of *Case Usage in Livy*, by R. B. Steele, published in Germany; "The Participial Usage in Cicero's Epistles," R. B. Steele (*AJP.*, XXXIV, 172-182); *The Future Periphrastic in Latin* (*id.*, *CP.*, VIII, 457-476); "*Neve* and *Neque* with Imperative and Subjunctive," by E. B. Lease (*AJP.*, XXXIV, 255-275). Important is "The Development of Copulative Verbs in the Indo-European Languages" (*TAPA.*, XLIII, 173-200), which deals with substitutes for the copula *sum* and its equivalents in various languages, including Latin.

INDO-EUROPEAN PHILOLOGY

(Exclusive of the Germanic Languages)

ROLAND G. KENT

General.—E. H. Sturtevant gives a valuable review of "Recent Literature in Comparative Philology" (*CW.*,[1] VI, 116-9). Under the title "Ueber grammatische Perseverationserscheinung-

[1] Periodicals are cited under the following abbreviations: *AJP., American Journal of Philology; CJ., Classical Journal; CP., Classical Philology; CW., Classical Weekly; IF., Indogermanische Forschungen; JAOS., Journal of the American Oriental Society; TAPA.* and *PAPA., Transactions* and *Proceedings of the American Philological Association.*

en," H. Oertel deals with modifications of words in assimilation to preceding words (*IF.*, XXXI, 49-66). C. L. Meader (*TAPA.*, XLIII, 173-200) shows that verbs meaning stand, sit, lie, remain, go, grow, appear, find, etc., have in various Indo-European languages developed into mere copulas, but mostly where there is a middle or reflexive meaning. W. G. Hale proposes changes in "The Classification of Sentences and Clauses" (*PAPA.*, XLIII, xxix-xxxii; and A. W. McWhorter discusses the "Mood of the Question" and the "Mood of the Answer" (*ibid.*, xliii-xlix).

Indo-Iranian. — In the "Columbia University Indo-Iranian Series," edited by A. V. W. Jackson, Vol. VIII has appeared: *Vāsavadattā, a Sanskrit Romance by Subandhu*, translated, with an introduction and notes, by Louis H. Gray.

L. C. Barrett has issued "The Kashmirian *Atharva Veda*. Book III" (*JAOS.*, XXXII, 343-90), in style similar to his publication of the first two books in the same periodical. M. Bloomfield (*IF.*, XXXI, 156-77) shows that in the oldest Sanskrit the finite verb may vary in position in the clause without the slightest change of meaning. A theory on the difficult question of the relations of Vedic, Sanskrit and Prakrit is set forth by W. Petersen in *JAOS.* (XXXII, 414-28); a partial reply to his views is given by T. Michelson (*ibid.*, XXXIII, 145-9).

Other articles are M. Bloomfield, "The Sikh Religion," in *Studies in the History of Religions* (169-86), presented to C. H. Toy (New York, 1912); E. W. Hopkins, "Sacred Rivers of India," in the same volume (213-29); F. Edgerton, "*Pañcadivyāhivāsa*, or Choosing a King by Divine Will" (*JAOS.*, XXXIII, 158-66); R. G. Kent, "Classical Parallels to a Sanskrit Proverb" (ibid., 214-6); W. H. Schoff, "Proposed Identification of Two South Indian Place-names in the *Periplus*" (*Jour. Royal Asiatic Soc.*, January, 1913, 130-3), and "Tamil Political Divisions in the First Two Centuries of the Christian Era" (*JAOS.*, XXXIII, 209-13).

H. C. Tolman (*Amer. Jour. of Archæology*, XVII, 85-6 and *PAPA.*, XLIII, liv-lvii), discusses the ethnological types and the dress of the figures on the grave relief of King Darius, and shows that the long flowing robe is Persian, and the tightly fitting coat and trousers are Median, reversing the usual belief on the point.

Greek and Latin: Linguistics and Syntax.—C. D. Buck (*CP.*, VIII, 133-59) shows that in treaties and other documents of interest to more than one community in ancient Greece much mixture of dialects occurred. The usages of *οὐ* and *μή* are discussed by T. D. Goodell and by B. L. Gildersleeve (*AJP.*, XXXIII, 436-49), and instances of *ὅταν* with causal meaning without temporal significance are adduced by A. C. Pearson (*ibid.*, 426-35).

C. L. Durham's "Formal Latin and Informal Latin" (*CW.*, VI, 97-101) and G. D. Kellogg's "Characterization of Gallic Latin" (*ibid.*, 90-4) are useful summaries on those subjects. F. F. Abbott's "Note on the Latin Accent" (*CP.*, VIII, 92-3) argues that the accent of the masses was a stress accent, imitating that of Greek. Some problems of "Hidden Quantities" are dealt with by C. D. Buck (*Class. Review*, XXVII, 122-6); a reply to this is to be found on pp. 160-2 of the same volume. E. H. Sturtevant (*TAPA.*, XLIII, 57-66) shows that the *ui* in *cui* and *huic* was a diphthong of which the *u* was the vowel element.

W. G. Hale (*IF.*, XXXI, 272-5) argues that as the perfect tense denotes completion, the perfect subjunctive in prohibitions in Latin came to indicate thoroughness or finality. R. B. Steele (*AJP.*, XXXIV, 172-82) studies the uses of the participles in Cicero's *Epistles* and compares them with similar usages in Livy; he presents also (*CP.*, VIII, 457-76) a study of "The Future Periphrastic in Latin," down to Suetonius. E. B. Lease (*AJP.*, XXXIV, 255-75) gives the first instalment of the history of "*Neve* and *Neque* with the Imperative and Subjunctive," down to Apuleius. R. C. Flickinger (*ibid.*, 276-99) gives a detailed history of "The Accusative of Exclamation in Epistolary Latin," continuing his study of the same construction in Plautus and Terence (*ibid.*, XXIX). C. C. Mierow (*CP.*, VIII, 436-44) discusses "Adverbial

Usage in Eugippius." R. G. Kent (*TAPA.*, XLIII, 35-56) discusses the results upon the vowels of the Roman dislike for writing the same letter twice in succession, and the linguistic inferences to be drawn therefrom; replies (*AJP.*, XXXIV, 315-21) to Fay's article on the orthographic rules of Lucilius (*ibid.*, XXXIII, 311-6); treats certain phenomena of "Purpose Clauses" (*CJ.*, IX, 35-6); and attempts to complete the interpretation of the inscription on "The Oscan Slingshot of Saepinum" (*IF.*, XXXII, 196-202).

Word Formation and Etymology.—E. W. Fay has an elaborate study on "Derivatives of the Root *Sthā* in Composition" (*AJP.*, XXXIII, 377-400, and XXXIV, 15-42); in the *Bulletin* of the University of Texas for Jan. 15, 1913, he has a detailed exposition to prove that "Indo-European Verbal Flexion was Analytical." E. H. Sturtevant concludes his "Studies in Greek Noun Formation: Labial Terminations" (*CP.*, VIII, 65-87, 334-48). S. G. Oliphant (*JAOS.*, XXXII, 393-413) argues that Sanskrit *dhénā* means "voice" or "song." E. W. Hopkins, in "Sanskrit *Kabāiras* or *Kubāiras* and Greek *Kabeiros*" (*ibid.*, XXXIII, 55-70), shows the original identity of the two seemingly different divinities.

E. W. Fay proposes an etymology for Vedic *sušíšvi-s* (*ibid.*, XXXII, 391-2); shows (*CJ.*, VIII, 253-6) that Latin *comes it* is used almost in the meaning "goes with," though this is not recognized even by the great *Thesaurus Linguae Latinae* now appearing; shows (*Class. Quarterly*, VII, 202-7) that the study of the etymology of words will often throw light on the syntactical constructions used with them; and presents a study of English "chews," "chooses" and their etymological cognates (*Jour. of Eng. and Germ. Philology*, XII, 425-33). Latin *pontifex* is etymologized by J. M. Burnam (*Berliner philologische Wochenschrift*, XXXIII, 254-5) as "maker of purity," and by R. G. Kent (*CP.*, VIII, 317-26) as "maker of the paths" between this world and the world of the gods and the dead. B. L. Ullman (*ibid.*, 172-94) discusses the etymology and meaning of *satura*. E. H. Sturtevant (*CW.*, VII, 29-30) reviews interestingly several new etymologies of recent date. L. Van Hook (*PAPA.*, XLIII, lix-lx) shows that the Greek rhetorical term *ψυχρότης* means "fustian" rather than "frigidity." (B. W. Mitchell (*CW.*, VI, 202-6) gives a popular account of the meaning of the names of the squirrel in many languages, under the title "In the Shadow of his Tail."

SEMITIC PHILOLOGY AND LITERATURE

MORRIS JASTROW

Syriac Book of Medicine.—A work of first-class importance is E. A. Wallis Budge's edition of *The Syriac Book of Medicine* (Oxford Univ. Press) based on a manuscript in the possession of a native of Mosul. While the manuscript itself is not so very old, it represents a compilation made on the basis of older works and thus embodies the traditional medicine of Syria. While the general point of view is that of Greek medicine, which made its way everywhere in the ancient world, the author, or rather authors, of this compilation have added to their work all the traditional lore and folklore of medicine, including astrology and divination as a means of determining the outcome of disease. Added to the work is a long list of what the compiler calls "the medicines of the country," which are the old popular remedies that undoubtedly go back to very early days. The publication thus forms a connecting link joining the later medicine of Syria with the early traditions that may be traced back to the medicine of the Babylonians and Assyrians.

Aramaic Incantation Texts.—The medicine of the ancient Orient (and for that matter, of the modern Orient) was never entirely divorced from incantations and it is therefore a natural step to pass from Budge's important work to Prof. James A. Montgomery's edition of the Aramaic *Incantation Texts from Nippur*, likewise accompanied by translations. These texts are found on clay bowls discovered by the University of Pennsylvania Expedition to Nippur, in the upper strata of the mound. The bowls, which are covered with drawings and inscriptions in ink, date approximately from the sixth century of our era. They were buried

with the dead who were supposed to be protected from evil demons by the formulae inscribed on the bowls. The publication is interesting from two points of view: first, as illustrating the persistency of belief in the activity of demons far down into the Christian era among both native Jews and Christians; and, secondly, from the point of view of language. In the latter respect Professor Montgomery's work is of the very greatest importance. It affords an insight into the current dialect of Babylonia in the seventh century and since he has added in a glossary a complete list of all words occurring in similar texts published up to the present time, this volume, which is one of the publications of the Babylonian section of the Museum of the University of Pennsylvania, will take its place as a standard work on the subject.

Cuneiform Texts.—Dr. A. T. Clay has added another volume to the long series of *Cuneiform Texts* that we owe to him. In his new publication, which forms Part II of the Babylonian records in the library of J. Pierpont Morgan, Dr. Clay has given us 56 splendidly preserved commercial and legal texts from the Seleucid era (3d century B. C.). Up to the present only a small number of texts from this very late period have been issued. One of the interesting features of Dr. Clay's new publication is the occurrence of a large number of Greek names in the text, most of which the editor has succeeded in identifying. These names illustrate the active influx of Greeks into the Orient, and we thus see at close hand the interchange of Oriental and Occidental ideas brought about through the conquests of Alexander. Curiously enough the name of Alexander appears in these records without the Greek ending *os*, giving us, therefore, the popular pronunciation of the famous name.

A most valuable work, summing up the results of the expeditions conducted by the German expedition on the site of Babylon during the last 13 years, is Dr. Robert Koldewey's *Das Wiedererstehende Babylon* (Leipzig). The volume gives in a most readable form a complete survey, systematically arranged, of the finds made in the various parts of the mound and of their cultural and historical significance.

Islam.—The appearance of a second edition of T. W. Arnold's well-known book *Preaching of Islam* (New York) should be noticed. The work appears in a revised form which gives evidence of the activity of the author during the 16 years that have elapsed since the appearance of the first edition. The entire range of the spread of Islamism into Western Asia, into Europe, India, Africa and the Malay Archipelago as well as among the Tartars is most carefully covered.

Ancient History of the Near East.—Another work of general interest is H. R. Hall's *Ancient History of the Near East* (New York). Mr. Hall, while not claiming to be a specialist along the whole range of subjects covered by him, has made himself thoroughly familiar with a broad field, while his special knowledge of Egyptian and Babylonian history has enabled him to treat such subjects as the older civilization of Greece, of the Hittites and the earlier history of Assyria and Palestine in a manner which throws a great deal of light on the relationships of ancient civilizations to one another. Mr. Hall brings his history down to the Battle of Salamis, a date which only a few decades ago was very close to the beginnings of ancient history. The work is abundantly illustrated and its usefulness further enhanced by several chronological tables.

Moses.—Lastly, in the field of Old Testament criticism, attention should be directed to the work by Prof. Hugo Gressmann on *Moses und seine Zeit*, an investigation thoroughly critical in character, but which by penetrating beyond textual criticism into a historical insight into the sources for the period of Moses, reaches conclusions that are much more positive than those of his predecessors. Moses, despite the legendary accretions about his name, looms up as a genuine historical personage to whom, among other things, the Decalogue in its original form is ascribed by the author of this latest study of the beginnings of the national life of the Hebrews.

XXXIV. EDUCATION AND EDUCATIONAL INSTITUTIONS

ANNA TOLMAN SMITH

FUNCTIONS OF THE FEDERAL GOVERNMENT

Appropriations. — The functions of the Federal Government in respect to education are limited to the control of the Military and Naval Academies, and to the direction of the school systems of newly acquired possessions and of schools for Indians and for the natives of Alaska. The appropriations by Congress directly for educational purposes for the fiscal year ending June 30, 1913, amounted in round numbers to $14,000,000. Of this sum, about $5,000,000 was applied to the education of Indians, including the support of the Indian Office at Washington, and $4,371,700 for agricultural education; of the latter amount, $2,500,000 was the continuing appropriation for the colleges of agriculture and the mechanic arts, and $1,871,700 the appropriation for experiment stations. For the maintenance of the public schools of the District of Columbia, Congress contributed $2,447,575, or one-half the total expenditure for the schools, the other half falling upon the citizens of the district.

The appropriations for Howard University and the Columbia Institution for Deaf Mutes were respectively $92,000 and $66,500. Although situated in the District of Columbia, both institutions draw students from a much wider area.

Bureau of Education.—For the current expenses of the Federal Bureau of Education the sum of $88,500 was allowed; for the schools for natives in Alaska $200,000, and for the reindeer service $5,000, both of which services are administered by the Bureau.

Federal Aid to Industrial Education. —Every year gives new proof of the wise forethought which prompted liberal grants of land and money by Congress for educational purposes, and the results of the endowments have inspired efforts for a renewal of government bounty. That the present Administration "stands for industrial education and for Federal aid to it" was declared in a public address by Secretary Redfield of the Department of Commerce, but the hopes of favorable action by Congress on some one of the pending bills giving effect to this purpose have been disappointed.

Activities Indirectly Educational.— The Federal Government also takes an active part in welfare activities which are indirectly educational. The first bulletin issued by the Children's Bureau discussed the care of the newborn infant. It was widely circulated, translated into several tongues, and excited a remarkable interest among mothers in the poorer classes. The Department of Agriculture is revolutionizing farm industries by its demonstration work, and through the coöperation of women's clubs carries instruction as to food tests and preservation to thousands of women in country homes. The Bureau of Plant Industry has 20 canning outfits at its command which are taken by demonstrators to country fairs, church sociables, women's clubs, etc., for the purpose of teaching women the art of scientific canning. Not less than 75,000 girls belong to canning clubs. The Public Health Service is one of the chief "health teaching" agencies in the world. The Bureau of Education is carrying on an aggressive campaign against make-shift rural schools and adult ignorance and has rallied to this endeavor innumerable social workers throughout the land.

GENERAL STATISTICS OF EDUCATION

Total Enrollment. — In most countries a full survey of education is attempted only at quinquennial or decennial periods, but through the agency of the Federal Bureau of Education the United States secures such a survey every year. In this work state and city authorities coöperate, as well as hundreds of individual institutions, and therefore any marked decline in school attendance or educational interest in any part of the country is very quickly detected.

On account of recent changes in statistical methods, and the delay in returns from several states, the record is incomplete for 1913. Estimates based upon full returns for 1911 and partial returns for 1912-13, however, indicate that school provision and attendance have kept pace with the growth in population. According to the rate of increase in recent years, there were above 21¼ million children and youths under instruction in this country during 1913. Of this total, fully 96 per cent. were in the ordinary schools and higher institutions, and the remaining 4 per cent. in special schools or in schools for special classes. As the movement and general relations of the student body change but little from year to year, the analysis of the complete returns for 1911, when 20,054,026 pupils were enrolled, may be taken to illustrate current conditions.

Distribution of Enrollment by Geographical Divisions. — Omitting the schools classed as special, the distribution of the total pupils in public and private schools and colleges by geographical divisions was as follows in 1911:

Geographical Division	Total Pupils	Pupils in Each Grade			Per cent. of the Total Population Enrolled in Each Grade			
		Elementary	Secondary	Higher	Elementary	Secondary	Higher	Total
United States	20,054,026	18,521,022	1,199,469	333,535	19.72	1.28	0.36	21.36
North Atlantic	5,089,030	4,613,764	379,155	96,111	17.44	1.43	0.36	19.23
North Central	6,739,933	6,134,906	470,688	134,339	20.23	1.55	0.44	22.22
South Atlantic	2,772,499	2,636,487	98,047	37,965	21.25	0.79	0.31	22.35
South Central	4,078,419	3,905,166	133,540	39,713	22.22	0.76	0.23	23.21
Western	1,374,145	1,230,699	118,039	25,407	17.19	1.65	0.35	19.19

The ratios of enrollment to population given above emphasize anew the fact that the adults of the southern sections are responsible for a larger proportion of children than the northern sections. Considering individual states, the highest proportion of the population under instruction was a little above 26 per cent., reported by two states, Mississippi and Tennessee. In four states, North Carolina, Arkansas, Oklahoma, and Utah, the ratio exceeded 25 per cent. As a rule, these high ratios are due to the large enrollment in elementary schools. Utah is the only one of the states named in which the proportion of pupils in secondary and higher grades exceeds the proportion for the United States as a whole. The relative status of the different geographic divisions in the latter respect is a matter of interest, as it bears directly upon the general intelligence of the entire country.

It need hardly be said that public funds are the main source of support for elementary and secondary schools; it should be noted, also, that nearly half the support of the higher institutions is derived from the same source.

Schools for Special Classes. — The following particulars relate to the special schools that, as a rule, do not come under the same administrations as those included in the preceding table; they show, however, the purpose to bring the benefits of education to all classes of people within the national domain.

Class of School	Number of Pupils		
	Public	Private	Total
City evening schools	375,000	.....	375,000
Business schools	.....	155,244	155,244
Reform schools	40,642	.....	40,642
Schools for the deaf	12,347	693	13,040
Schools for the blind	4,670	.....	4,670
Schools for the feeble-minded	6,956	592	7,548
Government Indian schools	39,397	.....	39,397
Schools in Alaska supported by the Government	3,841	.....	3,841
Schools in Alaska supported by incorporated municipalities (estimated)	4,500	.....	4,500
Orphan asylums and other benevolent institutions (estimated)	.....	17,000	17,000
Private kindergartens (estimated)	.....	110,000	110,000
Miscellaneous (art, music, etc.) (estimated)	.....	55,000	55,000
Total for special schools	487,353	338,529	825,882

Analysis of Enrollment by Age and Grade.—It is a matter of great consequence that the entire school population of the country has been brought under observation. But the mere item of enrollment signifies much less than certain conditions disclosed by the following analysis of enrollment in 1911 with regard to age and grade, based upon the estimates of age groups afforded by the Federal census of 1910:

Age Groups	Estimated Population by Age Groups	Enrolled in School		Not in School	
		Number	Per cent.	Number	Per cent.
Under 5 years	.....	56,151	.....	.....	.....
5 years	2,075,219	385,037	18.55	1,690,182	81.45
6 to 9 years	7,888,765	6,323,035	80.15	1,565,730	19.85
10 to 14 years	9,297,945	8,940,085	96.15	357,860	3.85
15 to 17 years	5,483,633	3,060,244	55.81	2,423,389	44.19
18 to 20 years	5,667,576	940,534	16.59	4,727,042	83.14
21 to 24 years	7,350,849	[1] 348,940	4.75	7,001,909	95.25
5 to 24 years	37,763,987	20,054,026	53.10	17,709,961	46.90

[1] Includes enrollment 21 years of age and over.

It is apparent that 6 to 14 years of age is the period of highest school attendance; unfortunately the large proportion of children in this normal school period are in low grades. The distribution by grades, as carefully worked out for the entire country, appears as follows:

Grade	Pupils	Per cent. of Total
Below high school	18,521,000	92.3
Below fifth grade	12,649,850	68.3

Less than 8 per cent. of all pupils, it is seen, had reached the high school, and more than two-thirds of the pupils were in the first four grades, which nominally should be completed at 10 years of age. If the fifth grade be included in the analysis, the proportion of the entire enrollment rises to 80 per cent. In other words, at 12 years of age the vast majority of the children in the United States have done with school, and below that age there is an alarming amount of retardation. The education problem of the time is that of retaining children under instruction long enough to insure their preparation for intelligent and useful citizenship. This is essentially the problem of the public of common schools, which educate 92 per cent. of all children and youths.

STATE SCHOOL SYSTEMS

Enrollment, Teachers, and Expenditure.—There are 49 independent state school systems in the United States, including that of the District of Columbia. They comprised during 1913 18¼ million pupils in elementary and high schools, 537,000 teachers, and an expenditure for the year of $447,000,000, or nearly half a billion. The distribution of this vast work by geographic sections, which varies little from year to year, stood thus in 1911:

Geographical Division	Total		Percentage of Men Teachers	Expenditure
	Enrollment	Teachers		
United States	18,035,118	533,606	20.7	$446,726,929
North Atlantic	4,257,455	131,078	13.6	149,247,686
North Central	6,020,231	208,038	18.9	169,070,869
South Atlantic	2,611,914	63,668	24.8	28,666,569
South Central	3,887,604	89,026	33.6	43,899,504
Western	1,257,914	41,796	17.8	55,842,301

Sources of Support.—The income for school purposes is derived from the sources and in the proportions here stated: permanent funds, 3.3 per cent.; state tax, 15.3 per cent.; local tax, 74 per cent.; other sources, 7.4 per cent. The total derived from permanent funds is $15,071,836, and of this amount more than half is from six states, which report the following values: Texas, $2,441,302; North Dakota, $1,419,676; Minnesota, $1,082,383; Ohio, $1,027,485; Oklahoma, $933,851; Illinois, $904,539.

Local taxes, the chief source of income for the schools, furnished in round numbers $334,000,000. Three-fourths of this amount is raised in the North Atlantic and North Central divisions of the Union. New York raises annually above $46,000,000 by local school tax; Pennsylvania and Illinois follow with nearly $29,000,000 each; Ohio raises 23½ million, and Massachusetts, 21½ million. An interesting fact is the increase in the amounts raised by local school tax in the southern states during the last decade.

In addition to the annual expenditure for the support of the common schools, the investment in school property is valued at 1¼ billion dollars. Part of this represents bonded debt, payments on which are not included in the current expenditure discussed above.

Inequality of School Provision.—The failure to retain children under instruction has already been considered, second only to this evil is that of the inequality of school provision between the different divisions of the country. This is readily shown by comparisons in respect to a few essentials as here given:

Geographical Division	Enrollment of School Population[1] (per cent.)	Average Attendance of Enrollment (per cent.)	Average Length of School Year (days)	Average Monthly Salary of Teachers	Annual Expenditure per Capita of School Population	Percentage of Illiterates in Population above 10 Years of Age	
						All Classes	Native White of Native Parents
United States	72.54	71.4	156.8	$59.49	$17.97	7.7	3.7
North Atlantic	67.91	79.2	179.8	67.19	23.81	5.6	1.1
North Central	77.42	73.9	164.3	58.43	21.74	3.2	1.7
South Atlantic	69.32	65.1	130.6	46.54	7.61	16.0	8.0
South Central	71.35	61.9	127.8	52.05	8.06	15.3	7.6
Western	78.58	75.2	159.3	76.24	34.88	4.4	1.7

[1] Ages 5 to 18.

The differences brought out in the above comparison are all explained by the great disparity in per capita expenditures. With the lowest rates go the lowest average salaries, the shortest school year, the lowest rate of average attendance, and the highest rate of illiteracy.

New Aspects of Public Education.— But the matter of public education is no longer to be measured in terms of state or sectional activity. In the last decade, profound changes have taken place in the very structure of our national life. The United States is no longer an aggregation of communities each sufficient to itself. A new order of organic growth has set in and the public schools have not kept pace with that growth because they have been treated too exclusively as local interests. The consciousness of this mistake explains the new lines of approach to educational problems and the new constructive agencies that are working out their solution. These problems present themselves under three aspects, rural, urban, and racial. Although these three aspects are fundamentally one, the emphasis in each case is upon different factors.

ELEMENTARY EDUCATION

RURAL EDUCATION

Inferiority of Rural Schools. — The rural school of the United States is not only less efficient than the urban school, but it is inferior to the rural school of other leading countries. This is a matter of national concern, since more than half the population (53.7 per cent.) of this country, comprising 58.5 per cent. of the school population, is rural. Country schools enroll approximately 60 per cent. of all elementary pupils; at the same time they get less than half the public money expended for school purposes. Their actual status as compared with urban schools is indicated by the following data, comprising 97 per cent. of the total enrollment:

	Cities and Villages	Outside Cities and Villages
Enrollment in public schools	6,713,899	11,100,553.00
Per cent. of total enrollment	37.7	62.3
Per cent. of enrolled pupils in average attendance	79.3	67.6
Average length of school year, days	184.3	137.7
Total number of teachers, including supervisors	159,176	364,453.00
Aggregate amount paid teachers	$140,729,047	$117,692,786.00
Per cent. of total paid to teachers	54.5	45.5
Amount paid to teachers per capita of enrollment	$21	$10.60

In view of the above comparison, it is not surprising that the rural population 10 years of age and over has twice as many illiterates as the corresponding urban population. This excess may be explained in part by the massing of the negroes in the southern states; but considering only the white people of these states, the ratio of illiteracy is 9 per cent. for the rural population, against 3 per cent. for the urban population. In a general way these distinctions have long been known, but their serious import has been overlooked. In this respect a change has taken place; the entire nation has suddenly been aroused on the subject, and many agencies, national and local, have been created for the upbuilding of the rural schools.

Investigations. — The division of Rural Education established in the Bureau of Education by Dr. Claxton in 1911 is carrying on the double work of investigation and propaganda. The committee on rural schools appointed by the National Education Association at the meeting of 1911 was continued in 1912 and again at the meeting of 1913. The members of this committee are recognized leaders in rural education and their recommendations carry weight with state legislatures. Several states, notably Vermont, Ohio, Wisconsin, Iowa, and North Dakota, have had special commissions during the year investigating rural conditions within their borders. Of all agencies engaged in this work, the most important is the Conference

for Education in the South, which held its sixteenth annual meeting in Richmond, Va., April 15-18, 1913.

Reform Measures.—As a result of these activities, the condition of rural education is now fully known; at the same time, by the exchange of information and councils, a reform movement has been started like that which wrought a transformation in city schools during the last century. This movement centers in three essentials, suitable school buildings, efficient teachers, and expert supervision, all of which are secured by means of the consolidated school serving several districts, with provision for conveying pupils at public expense. This expedient, which originated in Massachusetts (*A. Y. B.*, 1912, p. 793), has extended to nearly every state in the Union; there are now above 2,000 consolidated schools, with 57,000 pupils. In Indiana alone 1,600 small districts have surrendered their schools and are served by 600 consolidated schools.

The number of consolidated schools is few, however, as compared with the entire number of rural schools. Investigation in 32 states shows that these states have 147,227 one-teacher, or one-room, schools, 80 per cent. of all the public schools in those states. In 15 states, comprising above 80,000 one-teacher schools, one-fourth of the number have each less than 15 pupils. A very large proportion of these teachers are untrained and many have had no education beyond that of the rural school itself. It is the reform of the single-district school, the one-teacher school, that engages present efforts

Special Supervision for Rural Schools.—A permanent outcome of the reform movement is the plan of industrial supervision for rural schools which originated with the donor of the Emma T. Jeanes Fund for the benefit of negro education in the south and has been adopted for white schools in several counties of Virginia, Georgia, and Louisiana. The industrial school supervisors come into close relations with the home life of the pupils and coöperate also with farm demonstration work, the corn clubs, and the canning clubs, which are fostered by the Department of Agriculture at Washington. School improvement associations have arisen spontaneously or as the outcome of the supervisory system, and in several southern states have become permanent auxiliaries of the education departments. In these cases they are directed by state organizers appointed by the departments, but salaried by the Southern Education Board and the Peabody Fund. These associations have been particularly successful in raising funds and exciting entire communities to join in the work of supplying new school houses.

At every stage of the reform movement and from every point of view, the need of expert supervision for rural schools is emphasized, and the year has afforded several important experiments in this direction. At least 20 states have special agents who devote their entire time to the rural schools. Included in this number are 12 southern states in which supervisors of rural schools are appointed by the state education authorities, but paid by the joint action of the Southern Education Board and the Peabody Fund. In three of these states, Virginia, Kentucky, and Arkansas, "second state supervisors" are appointed for the rural elementary schools for negroes.

The Rural School Teacher. — The chief difficulty encountered in this movement is that of replacing thousands of makeshift teachers by trained men and women full of the spirit of the new era. Here again the South, by reason of its extreme need, has become the great field of experiment. Among expedients for training teachers already at work are the "demonstration school" central for a group of common schools, a plan which originated with the state supervisor of rural schools in Kentucky, and the practice rural schools maintained in connection with state normal schools. What is known as the "experimental school," an adjunct of the Winthrop Normal College, Rock Hill, S. C., affords a model of the highest type of one-teacher school. The principle of learning by doing is carried out in all the school exercises. These endeavors emphasize the importance of the plans that are forming for the Peabody Training College for teachers, an adjunct of Vanderbilt

University. A demonstration farm will be one of its chief features.

Relation of the Rural School to Social Uplift.—The new order of rural school leads naturally to the agricultural high school, and this in turn to the agricultural college. It is related also by its spirit and methods to the entire social uplift movement, which may justly be regarded as a form of university extension popularizing modern science by its practical applications to community problems. On the vocational side the organizing force in this movement was supplied by the Department of Agriculture at Washington through the genius of the late Seaman A. Knapp, whose work is continued under the direction of his son, Bradford Knapp. On the uplift side the driving force has been the Conference for Education in the South. Out of this Conference has grown nearly every agent that is working for rural improvement in the southern states. Similar, but more restricted, conferences are held in the northern states, the most noted being the Amherst Conference of Community Leaders which held its fourth annual conference in July. This Conference has exercised wide influence by its exposition of the social and economic problems of rural life, and by the manner in which it has unified the work of the different agencies, the churches, libraries, etc., which minister to the intellectual and ethical wants of the people.

As pointed out by Dr. Claxton, one of the most important results of this nation-wide movement is the increased inducement for men to enter educational work. They are wanted in the new supervisory services and as directors of agricultural training in the rural high schools. Thousands of new positions are already in prospect, every one of which carries the certainty of immediate return to the state for the expenditure incurred.

URBAN SCHOOL SYSTEMS

Statistics.—The problems of city school systems, considered apart from the systems of their respective states, arise from financial, vocational, and hygienic demands. The pressure of these demands depends chiefly upon the population, and hence the Bureau of Education has made this item the basis of city classification.

The following table summarizes the principal school statistics of the city groups thus formed:

Population	Cities Reporting	Public Schools			Enrollment in Private Schools	Public School Expenditures		
		Supervising Officers	Teachers	Enrollment		Cities Reporting	Current	Total
100,000 and over	50	560	72,801	3,052,157	640,593	48	$101,961,336	$138,499,974
25,000 to 100,000	186	728	34,182	1,292,101	248,584	164	35,937,097	49,834,074
10,000 to 25,000	374	752	25,592	952,300	172,114	302	22,505,849	32,155,031
5,000 to 10,000	635	675	22,240	847,308	110,728	512	16,989,285	23,440,517
Total.....	1,245	2,715	134,815	6,143,866	1,172,019	1,026	$177,393,567	$243,929,596

From this tabulation it appears that nearly one-half the city school enrollment is in 50 cities having each more than 100,000 inhabitants; more than two-thirds of both the total enrollment and the total expenditure are comprised in the cities of the two highest groups. It is to these larger cities that the fiercest criticism and the most searching investigations of school conditions are directed. While the group distinctions are suggestive, the salient facts in the year's record can be brought out only by reference to the individual cities, since each group includes a wide range of difference.

Investigations of Urban Systems.—Two cities of the highest group, namely, Baltimore and New York, have recently had their school systems under investigation by professional experts. The publication of the report of the New York investigation during 1913 naturally led to new reference to the Baltimore report. This was

particularly marked by the collection of data from other cities, and offers therefore material for comparative studies. The New York investigation was conducted by Dr. Paul H. Hanus of Harvard University, with whom were associated 11 specialists, each assigned to a distinct phase of the system. Hence, the final report comprises several monographs to which Dr. Hanus has contributed introductions and conclusions. The investigation, which cost the city of New York about $70,000, may have little immediate effect upon the system to which it pertains, but the report is a valuable compendium of opinions and information relative to the essentials of an efficient city school system. The monograph by Dr. Hanus crystallizes the best thought of the day on the new purposes, scope, and methods of public systems of education responding to the varied demands of modern life.

Separation of Financial and Scholastic Administration. — The investigations referred to were prompted by administrative complications and they have strengthened the movement for giving over the business side of city systems to financial officers, and limiting the province of the superintendent to scholastic matters. The office of city superintendent is one of the most important educational positions in the country, commands a high salary, and carries great prestige. Eight cities of the first group pay salaries ranging from $5,000 to $12,000 per annum. The general opinion favors long terms of service, and there are two cities in which the same superintendent has been retained for over 30 years.

Special Teachers — Among important experiments reported from the cities are those intended to relieve teachers from excessive responsibility and at the same time insure greater attention to individual pupils. Special teachers of drawing, manual training, physical culture, etc., have long been employed in the principal cities, and the policy is spreading to the smaller cities. An extension of this policy is the employment of teachers for pupils needing extra attention. Thus in Newton, Mass., a class was cently formed in the Technical High School for girls above 15 years of age who have not been able to make normal progress in the eighth grade. In Passaic, N. J., has been tried the experiment of organizing two-year industrial courses for boys in grades six to eight, who have little interest in the ordinary studies. East Chicago, Ind., has a well-organized system of separate classes for "repeaters" in the three higher grades, their time being divided between practical work and the grade studies under a special teacher. At one of the largest schools in Superior, Wis., a "special-aid room" is maintained, to which pupils may come for help in keeping up their grade work. Los Angeles, Cal., presents probably the most complete system of special classes adapted to different types of "misfits." These cases, which must not be confounded with special classes for defectives, illustrate what is going on in progressive communities throughout the country under the idea that the true purpose of public education is to save all children from ultimate failure.

The most recent type of special aid is the visiting teacher, an experiment started in New York City in 1913 by the aid of private subscriptions. It is the business of the visiting teacher to find out the home conditions of the pupils, in order that she may report particulars to the class teacher. Thus the latter can adapt her instruction and demands to individual circumstances, without exhausting her own energies in finding them out. There is also great need of special teachers for the immigrant population in the chief cities. This need was emphasized at a conference on the subject held in New York under the auspices of the New York-New Jersey committee of the North American Civic League for immigrants. In this connection it may be noted that the 425,000 pupils in city evening schools are largely drawn from the immigrant population. More than half the total number are in the evening schools of cities in the North Atlantic Division, and of this half, two states, Massachusetts and New York, supply 70 per cent.

The special classes tend to flexible grading, which is promoted further by the "departmental system" of teaching adopted for the seventh and eighth

grade classes in many cities, and also by the introduction of elective courses in the same grades.

The Gary Plan.—The new type of city school is concretely illustrated by the schools of Gary, Ind., which are not the least remarkable feature of the "steel city." While the Gary plan is not suited in all its details to other cities, its underlying principles are working out in various ways elsewhere. They call for wider use of the school plant for recreative and vocational purposes; open school house for more hours in the day—in Gary the period is from 8.30 a.m. to 10 p.m., and due supervision of all activities, including play, that take place on the school grounds. In this readjustment of school to life there is a marked tendency to eliminate the non-essentials of the old course of study, and thus save time for fuller instruction in civic affairs, moral obligations, and modern history, subjects which derive force from the complementary vocational training.

Welfare Agencies. — School gardens which have been successfully maintained in 10 of the leading cities bring the children close to nature, excite their interest in the processes of growth, and afford at the same time healthful exercise. Where the school garden occupies part of the ground of the city garden, a new center of community life is created.

Open-air schools for anemic or tuberculous children now number about 200, of which 80 are in Boston and 29 in New York. Vacation schools were maintained in 150 cities during the year, partly by public funds and partly by private contributions. Started originally for the moral and physical betterment of the poorer children, the conception has grown into that of an all-year school of varying adaptations. In Newark, N. J., the plan was applied in 1913 to one of the three high schools.

Medical Inspection. — Most important of all the welfare services that center in the schools is that of medical inspection, maintained now in about 440 cities. Where fully organized, this service provides for the physical examination of all pupils, followed by advice to the parents in special cases and by provision for home or hospital treatment when required. In several cities a staff of visiting nurses is also maintained. The medical inspection not only guards against the spread of contagious diseases through the agency of the schools, but leads to the discovery of causes of mental arrest. For this supplementary investigation, psychological clinics are maintained in several cities. (See also XXX, *Public Health and Hygiene.*)

School Hygiene.—The Fourth International Congress of School Hygiene was held at Buffalo on Aug. 25-30, under the auspices of the Federal Government. President Wilson was honorary president, and the invitations to official delegates were issued by the State Department. The presiding officer was Dr. Charles W. Eliot, president emeritus of Harvard University, who had been active in promoting the enterprise. The emphasis on health imparted a new and inspiring tone to the Congress, which was heightened by the accompanying exhibits. These set forth by graphic arts the advance made in the promotion of health, especially the health of school children, since the Paris Congress of 1908. The Congress not only gave new inspiration to the participants, but has helped materially to draw public support to the cause of school hygiene. (See also XXX, *Public Health and Hygiene.*)

Social Centers.—The movement for the wider use of the school plant is not intended merely to increase the hours for formal instruction, but also to use the school equipment for social purposes. According to a report of the Sage Foundation, 338 schools in 101 cities of the United States were used as social centers during 1913. In 44 of the 101 cities, social centers were directed by paid workers, who arranged activities of a social, recreational, or civic character. Special to the New York system are the lecture courses maintained under the supervision of Dr. Leipziger, who has recently extended his programme to include concerts, instrumental and choral. The welfare and social services connected with the city schools are maintained partly by private funds, but the public appropriations for these purposes are steadily increasing. (See also XVI, *Recreation.*)

EDUCATION OF THE NEGRO

Industrial Training of the Negro.—According to the census of 1910 there were 10,240,638 colored people in the United States, of whom above 8,000,000 were in the southern divisions. Practically, then, the problem of negro education is that of rural education, but it has also grave city aspects, as indicated by the fact that there are above 80,000 colored people in Washington alone. The perpetual agitation of the political and social status of the negro obscures the much more important question of industrial training.

Preëminent among the agencies working to this end is the "Jeanes Fund," which, under the charge of Dr. James Dillard of New Orleans, is successfully carrying out the plan of the donor for the supply of industrial supervisors to negro schools; during 1913, 124 such supervisors were maintained in 121 counties of 12 states at an expense of $37,400.

Alabama has started a movement for the uplift of negro schools within its borders by the state itself. The first step was the appointment in 1913 of a selected force of experts, white and colored, to take charge of the county summer institutes which draw together practically all the colored teachers in the state. This was followed by the appointment of a competent supervisor of rural schools, with special reference to the needs of the colored race. The state has also offered a model school to any community which will donate $200, together with a two-acre school farm and labor for building; the teacher must be either a skilled mechanic or agriculturist.

Throughout the South the colored people themselves are combining to promote their own development. State associations of colored teachers were organized during the year in 16 states and 21 states were represented in the National Association of Colored Teachers, which has held annual meetings since 1904. The Negro Organization Society of Virginia represents an attempt to combine all sorts of societies in a movement whose motto is: "Better schools, better health, better homes, better farms."

The tendency to united action has been fostered by the influence of the farm demonstration work carried on under the direction of the Department of Agriculture and the General Education Board. Apart from the direct training in agriculture thus afforded, the work illustrates in a practical way the advantages of united effort and the value of expert direction; it also prepares colored men for such directive service.

Public Schools for Negro Children.—It is difficult to show the exact status of the school provision for colored children, as the data are not entirely separated from those of the white schools. It appears, however, that during 1913 the public schools enrolled 1,800,000 colored children and employed the services of 33,000 teachers. The total expenditure for the schools was estimated at $8,700,000; the expenditure per capita of enrollment ranged from $1.71 in South Carolina to $18.81 in Missouri. There is a steady increase in the value of school property for the use of the race; in the rural districts this increase is due to funds raised directly by the colored people. The average annual salaries for the teachers ranged for men from $118 to $385 (special systems in Georgia) and for women from $98 to $260. The greatest recent progress has been in the lengthening of the school year. In nine states reporting this item separately, the length of term was from 96 to 138 days. Although the salaries, which depend on the length of the school session, are increasing, developing business enterprises conducted by negroes rival the schools in their attraction for the best students.

That there is a healthy increase in public high schools for negroes may be inferred from the following comparison:

	1910	1911	1912
Schools	141	150	159
Teachers	473	513	597
Students	8,251	9,641	10,877

Private Schools.—Private schools of secondary and higher grade for the race number 258, maintained chiefly

by denominational bodies. Their students were distributed as follows:

	Male	Female	Total
Elementary.....	17,386	23,672	41,058
Secondary.....	9,653	13,102	22,755
Collegiate and professional...	3,820	1,344	5,164
Total.....	30,859	38,118	68,977

Of the entire number of pupils, 34,208 were receiving industrial training. The force of teachers employed in these institutions numbered 3,419, of whom 1,563 were men. The total income reported for 242 schools was $2,785,993.

Within the past two years the religious boards, which are the main support of the higher institutions for the colored race, have appointed field agents or inspectors to supervise their schools, and have coöperated to prevent wasteful duplication of effort. These denominational schools are the chief training schools for the teachers, and therefore the improvement in their work will be felt in the rural schools.

In addition to the schools under responsible management, there are some 600 private schools for colored children, about which little is known, although they make constant appeals for aid. An important effort in behalf of the race is the organization of an inquiry into the status of these private schools, with the purpose of determining the direction of future efforts and appropriations for negro education, and also of assisting to raise the standard of the schools that are worth support. The inquiry is conducted through the combined agency of the Federal Bureau of Education and the Phelps-Stokes Fund. In commemoration of the Jubilee of the Freedom of the Negro, the Freedmen's Aid Society raised during the year $30,000 for the improvement of the schools under its management.

SECONDARY EDUCATION

Schools and Enrollment.—Of the many scholastic problems of the present moment, those pertaining to secondary education are most urgent. They are forced to the front both by the pressure of industrial demands and by the desire to preserve the traditional continuity between secondary and higher education. These conflicting claims, which are felt in all countries, operate on a broader scale and with greater complications in the United States than elsewhere, since no other country has attempted to bring secondary education within the reach of all the people. This is the cause of the phenomenal growth in free public high schools, which enrolled during 1913 1,100,000 pupils out of a total of 1½ million in all classes of secondary schools. Private schools, which enrolled 400,000 secondary pupils, are essentially select in character; at the same time they greatly concern the general public because of their influence upon standards and also because of the opportunity they afford for educational experiments, which, if successful, are soon adopted in public schools.

Statistics.—The relative magnitude and the geographical distribution of the two classes of secondary schools are shown by the following tables:

PUBLIC HIGH SCHOOLS

Geographical Division	Schools	Secondary Instructors			Secondary Students [1]			Income, 1911-12	
		Men	Women	Total	Boys	Girls	Total	Schools Reporting	Amount
United States	11,224	22,923	28,930	51,853	489,048	616,312	1,105,366	3,739	$21,272,444
North Atlantic	2,319	5,877	8,677	14,554	153,203	187,230	340,433	813	6,053,687
North Central.	5,148	9,805	12,319	22,124	203,707	256,113	459,820	1,463	7,479,761
South Atlantic	1,262	1,912	1,978	3,890	32,192	43,985	76,177	560	1,411,417
South Central.	1,625	2,823	2,739	5,562	48,355	66,125	114,480	599	2,183,949
Western.....	870	2,506	3,217	5,723	51,591	62,859	114,450	304	4,143,630

[1]Not including 176,774 pupils in elementary division.

PRIVATE HIGH SCHOOLS AND ACADEMIES

Geographical Division	Schools	Secondary Instructors			Secondary Students [1]			Income, 1911-12	
		Men	Women	Total	Boys	Girls	Total	Schools Reporting	Amount
United States	2,044	5,307	7,076	12,383	66,742	74,725	141,467	963	$10,416,916
North Atlantic	688	2,237	2,708	4,945	25,838	26,063	51,901	330	5,335,411
North Central.	498	1,036	1,843	2,879	12,968	18,976	31,944	181	1,998,932
South Atlantic	319	772	968	1,740	11,092	11,527	22,619	175	1,275,106
South Central.	358	810	873	1,683	11,832	10,505	22,337	202	1,113,321
Western.....	181	452	684	1,136	5,012	7,654	12,666	75	694,146

[1]Not including 80,965 pupils in elementary division.

The public high schools derive 93 per cent. of their income from public funds; the private schools derive 65 per cent. from tuition fees, 11 per cent. from endowments, and the balance chiefly from subscriptions.

Property and Equipment. — The most richly endowed private secondary schools are found, with a single exception, in the North Atlantic states; their ample resources give them great freedom in respect to organization and methods and also enable them to concentrate their efforts on well-defined purposes. The richest private schools, however, can hardly vie in equipment with public high schools in the largest cities. New York has attracted attention by the palatial character and æsthetic finish of recent high-school buildings. The Washington Irving High School, completed in 1912 at a total cost of $1,080,000, is perhaps the most perfectly appointed school for girls in the world; the Stuyvesant High School, which cost $1,072,000, combines a model machine shop with unsurpassed educational facilities. New Orleans, through the combination of a private fund and municipal appropriations, has recently erected two fine, spacious high-school buildings and the education board has received $1,000,000 from a second bequest for a trade school.

So far as reported, the property and equipments of the public high schools are as follows:

Geographical Divisions	Libraries		Grounds and Buildings		Scientific Apparatus, etc.		Expenditures for Sites, Buildings, and Improvements	
	Schools Reporting	Volumes	Schools Reporting	Value	Schools Reporting	Value	Schools Reporting	Amount
United States	10,329	6,185,937	9,762	$298,942,830	9,142	$20,967,986	2,645	$21,789,171
North Atlantic	2,083	1,621,107	1,868	85,491,472	1,832	6,146,329	414	5,042,367
North Central.	4,945	3,010,506	4,483	130,499,462	4,397	9,170,209	1,153	7,927,427
South Atlantic	1,089	380,327	1,159	19,047,959	889	990,846	324	1,319,816
South Central.	1,386	510,597	1,497	31,532,616	1,245	1,861,605	477	3,268,008
Western.....	826	663,400	755	32,371,321	779	2,798,997	277	4,231,553

Coeducation is the policy in the public high schools outside of a few eastern cities. There are but 35 high schools in the country exclusively for boys and 26 exclusively for girls; altogether they enroll only 69,152 pupils, which is less than seven per cent. of the total high-school enrollment. The status of the private secondary schools in this respect is as follows:

	Schools	Students
Coeducational.....	872	63,676 [1]
For boys only.....	423	34,533
For girls only.....	749	43,258

[1] 32,007 boys; 31,669 girls.

Courses of Study.—The distribution of students among the main courses of study is as follows:

Course	Public Schools, Per Cent.	Private Schools, Per Cent.
Academic	77	85
Commercial	11.6	10
Technical and manual training	7	2.8
Teachers' training	1.5	4.1
Agricultural	1.8	1.5
Domestic economy	3.8	3.9

The academic course, which enrolls the great majority of the students, comprises both classical and scientific divisions. The commercial and agricultural courses are generally complete in themselves; the remaining courses are more or less combined with the academic, so that duplicate enrollments are involved in the percentages.

Secondary Schools as College Preparatories.—The relation of the secondary schools to higher institutions is indicated by the following statistics:

	Public Schools	Private Schools
Total secondary pupils	1,105,360	141,467
Per cent. of total in college classical preparatory	2.62	8.53
Per cent. of total in college scientific preparatory	2.36	6.06
Number of graduates, 1912	137,880	17,776
Per cent. of graduates prepared for college	35.12	42.28

From the above statement it is evident that preparation for college is not the main function of secondary schools, either public or private. Even of the graduates in 1912, less than one-half had prepared for college. The number of graduates compared with the total enrollment shows, further, that a large proportion of students do not complete the full course of secondary studies. Indeed, the decline in attendance goes on steadily after the first year, although there are signs of improvement in this respect. Not only are pupils remaining longer in the secondary schools, but there is a noticeable increase in the number of schools that offer a full four-year course. More than 90 per cent. of the public high schools belong to this class and in no section of the country does the proportion fall below 72 per cent. The remainder range from one-year rural high schools to three-year schools which will shortly be transferred to the four-year class.

Denominational Schools.—The private schools present a greater variety of type, and even greater differences in equipment and efficiency. They are very generally boarding schools, and many of them have denominational relations. Of 1,532 schools reporting under this head, 755, with 41,079 pupils, are Roman Catholic schools, and 683, with 50,879 pupils, are non-sectarian. The denominational secondary schools are affected by the measures taken by denominational education boards to systematize the schools under their charge. The admirable system of the Roman Catholic Church is fully explained by Herbert F. Wright of the Catholic University in an article published in the last report of the Commissioner of Education.

The Dual Problem of Secondary Education.—New complications have been brought into the province of secondary education by the demand for vocational training, which in this country is regarded as a problem of adolescence. A hot contest is being waged between leaders who would confine this training to the existing secondary schools and those who would commit it to a new type of institution; meanwhile experiments seem to indicate the advantage of free local choice in this respect.

College Entrance Requirements.—The readjustment of secondary and higher courses of study is a much broader question and essentially national, since it involves the higher intellectual discipline which shapes the directive forces of a nation. This problem has engaged the attention of the Carnegie Foundation for the Advancement of Teaching, which recommends, first, insistence upon the completion of a four-year high school course as a preparation for college, and, second, greater freedom for the high school in selecting and organizing the subjects of instruction. The same conclusions were reached by a

committee of the National Education Association in a report adopted at the annual meeting of 1911. The recommendations of this committee, in respect to the essentials of a well-planned high-school course and its recognition by colleges as adequate preparation for their work, have been already adopted by many colleges and state boards of education. By means of the unit measure "of high-school work," adopted at a conference between representatives of the Carnegie Foundation and the National Committee on Standards of Colleges and Secondary Schools, the matter of college entrance conditions has been greatly simplified. In the application of this "unit," two hours of manual training or laboratory work are assumed to be equivalent to an hour of class-room work. The adoption of this measure leaves the college door open for youths who have little interest in abstract studies.

The problem of relations and values is covered by two bulletins issued during the year by the Bureau of Education, "Accredited Secondary Schools in the United States," by Kendric Charles Babcock, and "College Entrance Requirements," by Clarence D. Kingsley. The bulletins not only offer a full survey of the problem, but also material aid toward its solution.

Vocational Education.—The demand for vocational education has swept the country and wakened a response from almost every state legislature and city council. Twenty-nine states have passed laws relative to industrial training, Ohio and Wisconsin have virtually made attendance upon public trade schools compulsory for young people who pass from the elementary school to shops and factories, and Indiana has placed upon its statute book a comprehensive law, based in part upon the Massachusetts law of 1911, establishing a state system of vocational education, giving state aid for training in industries, agriculture, and domestic science, through all-day, part-time, continuation, and evening schools. For the support of the system a special tax of one cent on each $100 of taxable property in the state is authorized. Similar laws are pending in the Pennsylvania senate and in the legislatures of New Jersey and Rhode Island, and bills for extending the existing system of vocational training in the legislatures of Massachusetts and New York. In the Illinois legislature two bills on the subject were introduced during the year which raised a contest fatal to both. The practical results of the laws already passed are shown by the number of youths in vocational schools; Massachusetts reports nearly 11,000, Wisconsin 12,000, and New York 9,000, not including evening trade schools in the cities. (See also XVI, *Vocational Education and Guidance.*)

Agricultural Education.—The Act of Congress of 1862, providing for the endowment of colleges of agriculture and mechanic arts by grants of public lands was the first step in the movement which has culminated in the present demand for vocational education. As regards agriculture, therefore, the movement rests upon a solid basis of facts and achievements. Four classes of institutions are at present teaching agriculture along different lines: the agricultural college, the normal school, the high school, and the elementary school. Considering the subject in its vocational bearings, the high school is likely to become the most important agent, but the high school looks to the agricultural college not only for teachers, but for subject matter, since all that is known of agriculture as a scientific process or as a teachable subject has come through the efforts of the colleges, with their research laboratories and experiment stations, supplemented by the Federal Department of Agriculture and the graduate school of agriculture.

Agriculture is now taught in 67 institutions in the United States, including 17 separate schools for negroes, which are receiving Federal aid under the land-grant act of 1862 and subsequent acts. Of the so-called agricultural colleges, only one, the Massachusetts Agricultural College, is an exclusively agricultural college; 23 are colleges of agriculture and mechanic arts; and 26 are colleges or departments of universities.

Ten of the agricultural colleges have courses specially designed for training teachers in agriculture; 23 have courses in psychology and general edu-

cation; and 13 have departments of agricultural education which give courses in methods of teaching agriculture, as well as in general pedagogy. Several of these agricultural education departments are supervising the teaching of agriculture in high schools of the states.

Forty-three institutions maintain directors of agricultural extension. They receive appropriations from the states in varying amounts, from a few hundred dollars to $50,000. Their activities are conducted along widely differing lines, such as lectures, reading courses, traveling libraries, movable schools, educational trains, demonstration farms, educational exhibits at fairs and other places, moving pictures, supervision of agricultural teaching in both secondary and elementary schools, boys' and girls' clubs, and many other directions. (See also XIX, *Agriculture.*)

TRAINING OF TEACHERS

The change in educational purposes profoundly affects the teaching profession. The methods of professional training are changing and the service is offering inducements to men which rival the lucrative promise of other professions. In the opinion of Commissioner Claxton, the increase in the number of agricultural high schools will create a demand for thousands of men teachers, while additional hundreds will be required for the position of agricultural supervisors. Under these conditions the questions of need and supply, of competence and salaries, as related to teachers, have become doubly urgent. The salary question is fundamental, but even where adequate salaries are offered it is difficult to find candidates who are competent to undertake the new forms of training. It is estimated that the present agencies for training teachers would not meet more than one-fifth the annual loss in the force employed in the public schools.

The following table summarizes the particulars relative to students in training for the teaching service in different classes of institutions in 1911-12, the latest year for which statistics are available:

Class of Institution	1910–11		1911–12	
	Institutions	Students	Institutions	Students
Public normal schools	223	75,642	222	83,474
Private normal schools	65	8,453	55	6,510
Public universities and colleges	38	5,586	.....	([1])
Private universities and colleges	101	5,670	.....	([1])
Public high schools	711	14,680	838	17,311
Private high schools	259	5,246	268	5,819
Grand total	1,397	115,277	1,383	113,114
In all public institutions	972	95,908	1,060	100,785
In all private institutions	425	19,369	323	12,329

[1] Not reported.

The appropriations for public normal schools doubled in the decade 1902 to 1912. For the year 1911-12 they amounted to $9,254,606, of which $7,553,315 was for support and $1,701,291 for buildings.

Summer schools, which are multiplying from year to year, draw a very large proportion of their students from teachers actually in service or from candidates for teachers' certificates. The number of summer schools reported in 1912 was 569 with 142,217 students, an increase of 92 schools and 23,910 students over 1911. The estimated cost of the schools was, in round numbers, $1,940,000, and the average cost per student $15.51.

From a brief survey of movements affecting public school systems it appears that the year 1913 has been marked by a decided advance in con-

structive policies. The greatest contribution to this movement is the report of a committee of the National Council of the National Education Association, advocating the reduction of school life by two years and offering a scheme for the reconstruction of the American system on this basis.

HIGHER EDUCATION

Institutions. — Under the general head of higher education are classed universities, colleges, and technical schools that are authorized to confer degrees, however widely they may differ in scope and purpose. The 596 institutions listed in this class by the Bureau of Education range from a simple college with less than a hundred students to universities like Harvard and Columbia, Michigan and Illinois, which combine in one organization colleges of arts and sciences, technical schools, graduate departments, and professional schools. Data are given, however, which indicate very plainly the equipment of each institution for its professed work. The Bureau of Education has announced minimum requirements for future admission to this list, an action which is the sign of a growing disposition throughout the country to discredit false use of scholastic terms.

The common bond between the single college or technical school and the composite university is the undergraduate curriculum, which in its normal form leads either to the degree of bachelor of arts or bachelor of science. The modified courses leading to other degrees, and the relative number of students pursuing each, afford a fair index to the actual work of individual institutions; hence the tabulated statistics of higher education indicate not only its extent, but, in a measure, its content.

Statistics.—Many of the higher institutions include preparatory divisions which belong with the secondary schools of the country. For higher education, *per se*, the 596 universities and colleges reported for 1912, 25,062 professors (21,727 men and 3,335 women) and 255,673 students (168,601 men and 87,072 women). The total receipts of the institutions amounted to $104,514,095, and their productive funds to $357,048,919. The following table shows the distribution of the student body by departments in the different geographic divisions:

Geographical Division	Preparatory Departments		Collegiate Departments		Graduate Departments		Professional Departments		Total (excluding duplicates)	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
United States	40,375	23,440	117,756	69,040	8,862	3,800	36,154	1,462	208,976	110,512
North Atlantic	9,224	2,838	38,097	17,318	3,961	1,273	9,740	279	63,267	22,387
North Central	16,162	3,290	43,491	28,809	3,087	1,635	14,699	864	81,255	48,882
South Atlantic	5,167	5,148	13,362	7,412	648	100	4,167	69	23,280	14,403
South Central	6,630	5,839	11,865	7,241	391	118	4,798	147	23,711	14,170
Western	3,192	1,325	10,941	8,260	775	734	2,750	103	17,463	10,670

The distribution of the total receipts and of the productive funds by geographic divisions was as follows in 1912:

Geographical Divisions	Total Receipts	Total Receipts, Exclusive of Additions to Endowments	Productive Funds
United States	$104,514,095	$89,835,787	$357,048,919
North Atlantic	39,761,881	32,553,141	159,136,638
North Central	36,311,327	31,258,144	114,897,189
South Atlantic	10,442,195	9,613,953	17,445,688
South Central	7,323,682	7,086,359	20,061,431
Western	10,675,010	9,324,190	45,507,973

The aggregate of benefactions to higher educational institutions in the United States in 1911-12 was $24,783,090, excluding public grants, Federal, state and local. There was an increase of $1,819,945 over the benefactions for 1910-11. Of the entire amount $18,527,078, or 74 per cent., was bestowed upon 54 institutions, each of which received above $100,000.

Of the entire income for the higher institutions $89,835,787 was for current expenses. The main sources of this total and amount from each source were as follows:

State and municipal appropriations	$18,323,878
Federal Government	5,499,927
Income from invested funds	14,225,998
Income from fees for tuition and other educational services	20,062,353
Private benefactions	10,104,782

The appropriations by the Federal Government were shared by 87 institutions, which also received the greater part of the state appropriations, approximately $17,000,000.

The prevalence of coeducation in the higher institutions is indicated by the following tabulation:

Class of Colleges		Undergraduate Students
For men only		37,427
For women only		21,423
Coeducational	Men	80,329
	Women	47,617
Total		127,946

Large Institutions.—The phenomenal growth of certain universities is a striking fact in the record of the past half decade. There are at present five universities of private endowment and seven state universities having no preparatory departments, each of which registers above 3,000 students. To this number should be added one state and one private university which have preparatory departments that make no drain on the forces of the university proper. With a single exception these institutions report incomes exceeding one million dollars; their aggregate income is in round numbers $33,000,000, or nearly one-third the total income of all the higher institutions. The inference is obvious; students flock to centers which have the fullest equipment and are able to command the services of the most eminent teachers. It is worthy of note that none of the private universities referred to above receive aid from public appropriations; the state universities, on the contrary, depend for their income almost entirely upon annual appropriations by the state legislatures.

In the group of universities here referred to, Columbia University stands out with striking distinctness. The enrollment for the year reached 9,379 regular students and 3,471 attending extension classes. The value of the property administered by the trustees is $45,000,000, rising to $55,000,000 when the property and endowments of Barnard College, Teachers College and the School of Pharmacy are added.

Free Tuition and Scholarships.—The fact that tuition is free in state universities, save only the small charge for laboratory facilities, gives students in the western states an advantage over those in the East, where state universities are wanting. This inequality is partly overcome by the large number of scholarship and other funds offered in eastern institutions. Out of a total of 13,989 scholarship and fellowship funds available in 1912 for students, 7,073 were reported from the North Atlantic states. Pennsylvania University led the list with 548. Harvard had at its disposal 495, and Princeton 447.

Standardization of Degrees.—The relative demand for different courses of study is indicated by the degrees conferred. Omitting honorary degrees and professional degrees other than technical, the total number conferred at the close of the scholastic year 1911-12 was 29,265, of which men received 19,468 and women 10,167. The degree of bachelor of arts led with 14,154 recipients (7,445 men, 6,699 women); the degree of bachelor of science followed with 5,253 recipients (4,241 men, 102 women). The list includes over 30 modifications of these diplomas, among which the bachelor of philosophy shows the greatest number of recipients. Engineering degrees numbered 1,672, the degree of C. E. leading with 690 recipients, all men. At Columbia the degree of bachelor of literature was conferred upon nine candidates who completed in the first year the advanced or grad-

uate course in the new school of journalism.

Complaint is still made of diplomas which are little short of fraudulent on account of the low standard of the institutions according them, but these instances are rapidly decreasing. The complete remedy for this evil is in the power of the states which grant the charters, hence the various associations that are creating public opinion in favor of high scholastic standards transcend sectional and scholastic limits, since, in the end, they establish the good repute of the nation in the world of letters and science.

Classification of Institutions.—Individuality is the mark of every institution included in the foregoing summaries; hence grouping is difficult. There are, however, movements affecting all higher institutions which may be taken as the index of their current history. Chief among these movements is that which aims at a sound basis of classification. On this subject, Dr. Babcock, recently specialist in higher education in the Federal Bureau, says:

> It is no longer a theory that standardization or classification would be a good thing. Classification has already begun; the demand for it comes from many sources; and many agencies, not less than 22, are at work to supply the demand. The ease with which people move from one part of the country to another, the highly desirable interchange of men of experience and of power between North and South, and East and West, is certain, sooner or later, to produce uniform standards, while leaving large independence in the methods of meeting those standards.

Among the needs such standards would meet is that of state and local boards of education charged to decide upon the merits of applicants for high school teachers' certificates. The state of Oregon by recent statute has determined such a standard, and New York state accomplishes the same end through the regulations issued by the regents of the state university.

This, however, is a matter which, like licenses for medical practice, should not be limited by state lines. It affects not only the entrance upon a college course, but the subsequent admission to advanced standing in the case of students who, for any reason, wish to change their college relations. On account of the migratory character of the population, such changes are constantly occurring, and should be effected without the loss of time to the student or undue labor on the part of the institutions.

The efforts at classification have already resulted in a distinction between junior colleges and standard colleges, the former offering only two years of college work and the latter full four-year degree courses. Within the last two years a few private institutions have voluntarily placed themselves in the former class, several states have authorized two years of college work in normal schools and selected high schools, and denominational boards are taking similar action. In this connection may be noted also the merging and consolidation of state or denominational institutions which duplicate work within limited areas. These movements emphasize the distinction between collge and university, which is one of the chief subjects of current educational discussion. The group of colleges that realize most completely the ideal of liberal culture, Bowdoin, Williams, Amherst, Hamilton, Beloit, Grinnell and their peers, has been increased by the recent foundation of Reed College at Portland, Ore.

From the standpoint of scholastic discipline, the final test of efficiency in the college is the success of its students in post-graduate studies; hence the significance of the chief subjects presented before the University Associations in their annual meetings in 1913. The National Association of State Universities, which met at Washington, Nov. 10-11, considered particularly the proposition for a National University, which would logically be formed for graduate study and research. The Association of American Universities in its meeting at the University of Illinois, Nov. 6-7, discussed the types of graduate scholar as described in a paper by President Hibben of Princeton University.

Advance in the South.—The great advance that has been made by the South in respect to higher education is summed up in a report by Elizabeth Avery Coulton, Secretary of the

Southern Association of College Women. She notes marked improvement in entrance requirements, equipments, libraries, laboratories, buildings, etc., and in the higher qualifications of the faculties and ability of the faculties. Two agencies, the Carnegie Foundation for the Advancement of Teaching and the General Education Board, have contributed most to this progress, the former by its publications, the latter through the founding of professorships of secondary education to aid the high schools in their relation to the colleges. With the higher entrance requirements has come a decided increase in the amount of college work represented by the degree. In 1904, according to Miss Coulton, the A. B. of only two southern colleges represented four full years of college work, while by 1914 graduates of at least 25 colleges will have completed four years of standard college work.

Currents of Influence; Socialistic and International.—Apart from curricula and scholastic standards there are currents of influence moving within higher institutions which have a powerful effect upon individual character and at the same time create a sense of solidarity throughout the student body. A striking illustration is afforded at the present time by the spread of socialism in colleges, as indicated by the fact that the Intercollegiate Socialistic Society, now in its eighth year, numbers 64 undergraduate and 12 alumni study chapters. Among the chapters now organized every division of the country is well represented.

Even more impressive is the spread of the international spirit. Although this has been stimulated by extra-college activities, such as the peace movement and the Christian Students' Federation, these in turn have been promoted by the natural expansion of university life. The exchange of professors between Harvard and Berlin and Columbia and Berlin was so successful from the first that similar exchange arrangements have since been made with French, Scandinavian, Japanese, and South American universities; thus the most inspiring teachers become, as it were, world professors. The year 1913 is marked by the establishment of an exchange between Columbia and the universities of Austria. Dr. George Stuart Fullerton, professor of philosophy, goes to Austria, and Dr. Josef Schumpeter, of the University of Graz, replaces him at Columbia.

In addition to professors coming from Europe through the exchanges established with Harvard and Columbia, similar services are secured from time to time, by special arrangement. During 1913 Michigan University had lectures from several noted foreigners, among them Dr. Ludwig Fulda, of Berlin, who came under the auspices of the Germanistic Society, and Dr. G. Snouck Horgronji, professor of Arabic in the University of Leyden. The University of Pennsylvania will have for a year the services of Dr. Arthur Ungnad, the great Assyriologist, of Jena, who arrived in this country in September. He will direct work on the rare tablets in the University Museum. Dr. John L. Myres, professor of ancient history in Oxford University, and one of the foremost archæologists of the world, holds the Sather professorship of classical literature at the University of California during the second semester of 1913-14.

Parallel with the exchange of professors are the arrangements for enabling selected students from one country to receive part of their college training in another country. This interchange has given a great spur to the formation of cosmopolitan and international clubs. The most significant evidence of the growth of this solidarity in the student world was the eighth meeting of the International Federation of Students, which convened in 1913 at Cornell University. Through its affiliations every important students' club or society in the world is represented in the Federation, and it is estimated that fully half a million students are thus united in fraternal bonds. At the Ithaca meeting, which occupied the fortnight from Aug. 29 to Sept. 13, nearly 700 universities situated in 27 different countries were represented. Plans were discussed for increasing the bonds between students of all nations, and for a world's international students' congress to be held at San Francisco in 1915 in con-

nection with the Panama-Pacific Exposition.

Idealistic Tendencies.—The decided stand taken during the past two years by leading university men for the preservation of classical studies appears to be part of a general revival of interest in truth and beauty as the ultimate ends of higher education. Proofs of this revival are afforded by the intense interest manifested in the lectures of Henri Bergson, during the year visiting professor at Columbia, and of Rudolph Eucken, of the University of Jena, who, in his service as German exchange professor at Harvard and Deems Lecturer at New York University, excited wide interest in the verities of idealism.

The interest in art in its varied forms is an outflowering rather than a revival, manifesting itself in festivals of song and magnificent pageants, which thrill at once sense and imagination and awaken new purposes in the minds of liberal benefactors. Thus Harvard finds itself the recipient of ample funds for a building dedicated to the music department, and the University of Illinois, in the dawn of an expanding era, plans a Museum of European Culture, in which the history of civilization will be illustrated by the treasures of plastic and pictorial art which mark its distinctive stages.

Training for Administration and Public Service.—*Pari passu* with the movement toward the ideal is the extension of university courses pertaining to the economic and social problems that have arisen in the political and civic crises of the present time. Special courses of training for directors in the various welfare services and conservation projects are multiplying; even more significant is the rapidly increasing provision for the higher services of commercial and administrative affairs. In view of the needs of railroads and other corporate enterprises, Harvard offers a new highly specialized business course; New York University has increased the resources of the department of public affairs formed a year ago under the direction of the distinguished economist, Jeremiah W. Jenks; Cornell has instituted a new course in citizenship, formally opened by Clinton Rogers Woodruff; President James has raised the business courses of the University of Illinois to a professional plane and has had the satisfaction of seeing them transferred to a new commerce building during the year; the Massachusetts Institute of Technology has established a unique course in industrial physics, by means of which its laboratory and research facilities will be utilized for the solution of problems arising directly from industrial experiences. These are a few examples of activities which in some form might be duplicated from the current record of every one of the principal universities of the country. They are emphasized by the announcement on Nov. 6 by the Chamber of Commerce of the City of New York of a fund of $500,000 pledged by an unnamed donor for the establishment of a municipal school of commerce.

The state universities of the West, from their political relations, have naturally paid great attention to social and industrial problems. State boards and commissions appointed for special services in that section of the country almost invariably include experts drawn from the university faculties.

University Extension and Correspondence Courses.—The standardizing movement which has gained enormous impetus within the past few years has not lessened the efforts to bring university teaching within easier reach of the people at large. This was the original aim of university extension, which in its later developments seeks to carry university teaching beyond the university walls. In this effort Wisconsin University has achieved great distinction, and during the year was asked to send leaders in the work into Pennsylvania to arouse in that state an interest in the idea of making a university serve the present needs of the whole commonwealth. One feature of the extension work at Wisconsin is the correspondence courses, in which the interests of every class of the community have been considered.

Libraries and Museums are managed with ever-increasing attention to the needs of students. The former are considered elsewhere (see *Libraries, infra*). In regard to museums, the

most recent development is the formation of children's departments, arranged with special reference to their studies and interests. The extension plans for the University of Illinois include a series of specialized museums. At Harvard the year has been marked by the removal of the last sod for the foundations of the last section of the Peabody Museum. The event took place on May 28, the 106th anniversary of the birth of Louis Agassiz, in whose mind the conception of this museum of comparative zoölogy took shape a half-century ago.

College Facilities for Women.—By reference to the statistics showing the distribution of college students, it will be seen that there are 69,040 women in the undergraduate courses. Of this number, 21,423, or a little more than one-third, are in colleges for women exclusively. These institutions bring clearly to view the needs and special functions of higher institutions for women. They are hampered particularly by the lack of adequate endowment funds. Smith College, with its enrollment of nearly 1,600, is the largest institution in the world devoted to the education of women, and its needs are proportionately great. During the year success has, fortunately, attended the effort to raise a $1,000,000 endowment to be devoted to the increase in salaries.

Bryn Mawr College and Wellesley College have each entered during the year upon an experiment of great importance in the present stage of educational development. Bryn Mawr will have within its campus a private school which, it is expected, will furnish proof that a select class of girls may be prepared for the high standard of college admission in seven years, covering the ages 10 to 17. The Department of Education of Wellesley College is provided with an experimental kindergarten in which the best theories of child training may be fully exemplified. It is interesting to note in this connection that Harvard University is undertaking a similar experiment upon a more elaborate scale by means of a practice school forming an adjunct to the Education Department.

Notable Celebrations.—Among many events pertaining to individual institutions special interest attaches to the celebration at Colorado College of the 25th anniversary of the inauguration of President Slocum, which took place June 14. Largely through the president's personal efforts the endowment has increased in the quarter of a century from nothing to $1,100,000. On the beautiful campus eleven buildings have been added to the one original building, the two laboratories increased to 27, a library of 150,000 volumes collected, and the student body increased from a group of 30 to 687. The anniversary was marked by the laying of the corner stone of a memorial gymnasium.

On Oct. 22 the Graduate School of Princeton University and the Cleveland Memorial Tower were dedicated. The high ideals of university life, ideals of mental worth and of the priceless value of noble memories which these structures typify, were emphasized by the presence of a distinguished company of scholars from many countries. The chief feature of the ceremonies was the memorial address on Grover Cleveland by ex-President Taft, one of the most memorable addresses in the annals of university celebrations in the United States.

Changes of Personnel.—As regards changes of personnel the most interesting events of the year were the inauguration of Thomas Woodrow Wilson, the former president of Princeton University, as President of the United States, and the assumption by ex-President William Howard Taft of the duties of the Kent professor of law at Yale University (see also I, *American History*).

Prof. Henry C. Adams, of the University of Michigan, who developed the system of scientific accounting now in use by the Interstate Commerce Commission, was granted a year's leave of absence that he might accept the offer of the Chinese Government to perform the same service for the Chinese railroads.

Dr. Kendric Charles Babcock resigned the position of specialist in higher education in the Federal Bureau of Education to accept the position of dean of the combined colleges of liberal arts and of science in the University of Illinois.

Dr. John Casper Branner was inaugurated as president of the Leland Stanford Junior University, succeeding the first president, Dr. David Starr Jordan, who had held the office for 22 years and has become chancellor of the university.

Dr. Frank Johnson Goodnow, professor of public law and municipal science in Columbia University, was appointed legal adviser to the government of the Republic of China.

Rev. Dr. George R. Grose was installed as the eleventh president of Depauw University on April 22, succeeding Dr. Francis J. McConnell, who had been elected a bishop of the Methodist Episcopal Church.

William W. Guth, Ph.D., has accepted the presidency of Goucher College, Baltimore, having served in the same capacity at the College of the Pacific, San Jose, Cal., since 1908.

The interregnum in the presidency of Marietta College, Marietta, O., caused by the death of President Perry one year ago, ceased with the inauguration as president of George W. Hinman, Ph.D., a man of high scholarly attainment, distinguished as a lecturer and writer on foreign history and diplomacy.

Prof. Kerr D. MacMillan, D.D., of Princeton Theological Seminary, has accepted the presidency of Wells College, New York.

Dr. Ernest Carroll Moore, a recognized authority in respect to educational theory and systems, resigned the professorship of education in Yale University to accept a position in the Education Department of Harvard University.

Dr. A. T. Ormond, who has held the McCosh professorship of philosophy for 15 years, was inaugurated as president of Grove City College, Pennsylvania, Nov. 15.

Henry J. Patterson, director of the Maryland Experiment Station, was elected president of the Maryland Agricultural College, College Park, on April 17.

Dr. Lyman P. Powell resigned his position as head of the department of business ethics in New York University to accept the presidency of Hobart College.

Dr. Paul S. Reinsch, professor of political economy in the University of Wisconsin, was appointed Minister to China. He brings to the difficult duties of that post an almost unrivaled familiarity with Far Eastern politics. His works on Oriental subjects have been translated into Japanese and Chinese, as well as into the principal European languages.

Prof. William A. Stocking, Jr., of the dairy department of the Agricultural College of Cornell, has been appointed as acting director of the college, which has gained international reputation under the direction of Dr. Liberty Hyde Bailey, who has resigned the position to devote himself to work as propagandist and expert adviser in his chosen field.

Prof. Frederick Henry Sykes, of Columbia University, was called to the presidency of the Connecticut College for Women at New London.

The tender of the presidency of Greensboro Female College, North Carolina, was accepted by Dr. S. B. Turrentine.

Rev. Dr. Henry F. Ward, Secretary of the Methodist Federation for Social Service, has accepted the professorship of that subject in the School of Theology in Boston University.

Dr. W. A. Webb, of the University of Colorado, was called to the presidency of Randolph Macon Woman's College.

Dr. Arthur Yager, president of Georgetown College, Kentucky, and formerly a fellow-student of President Wilson at Johns Hopkins University, was appointed Governor of Porto Rico.

The new educational era in Ohio is marked by the creation of the office of State Superintendent of Public Instruction. The first to bear the title is Frank W. Miller, who has acceptably filled the office of State Commissioner of Education.

The most noteworthy change of personnel in a state service was that occasioned by the death of Andrew S. Draper, State Commissioner of Education for New York, and one of the greatest leaders that have ever served the school interests of this country. He is succeeded by Dr. John Huston Finley, under whose presidency the College of the City of New York has been raised to the first rank among municipal institutions.

PROFESSIONAL EDUCATION

Statistics of Professional Schools.—Special training for the liberal or non-technical professions is given in departments of universities or in independent schools which are included in the following summary of statistics for the year 1911-12, the last for which figures are available:

Class	Schools	Instructors	Students	Increase (+) or Decrease (−) as compared with 1910–11	Graduated in 1912	Students having a Degree
Theology	182	1,502	11,242	+ 408	1,941	3,745
Law	118	1,707	20,760	+1,145	4,394	4,472
Medicine	115	7,572	18,452	− 694	4,215	2,381
Dentistry	52	7,088	7,190	+ 229	1,775	115
Pharmacy	76	962	6,163	+ 32	1,710	84
Veterinary medicine	21	400	2,282	− 290	731	18

Class	Value of Grounds and Buildings[1]	Endowment funds[1]	Benefactions[1]	Total income	Volumes in Libraries[1]
Theology	$21,189,234	$36,682,052	$1,680,754	$3,852,303	2,318,255
Law	4,980,875	1,989,124	425,867	1,368,053	935,689
Medicine	27,222,950	11,310,787	1,284,158	4,528,845	449,394
Dentistry	2,068,085	461,915	6,410	680,639	38,386
Pharmacy	1,971,792	399,264	3,920	529,391	86,786
Veterinary medicine	1,175,676	.....	1,800	612,460	13,243

[1] In so far as reported.

The financial statistics are aggregates for the schools which report the items, the professional departments of universities not as a rule having separate accounts. Few changes of note have occurred during the year, but it appears that theology and law have made decided gains in number of schools, students and graduates from 1900 to 1912, while for the same period schools of medicine, both regular and homeopathic, show decrease in all these particulars.

Theological Schools.—Schools of theology are generally independent. It is worthy of note that 26 of these schools have permanent endowments of $450,000 to $3,268,547. The following are the schools of theology with endowments exceeding a million dollars:

McCormick Theological Seminary (Presb.), Chicago	$1,664,400
Princeton Theological Seminary (Presb.), Princeton, N. J.	3,264,973
General Theological Seminary (Prot. Epis.), New York City	2,145,278
Union Theological Seminary, New York City	2,381,700
Rochester Theological Seminary (Bapt.), Rochester, N. Y.	1,733,243

An important movement in the schools of theology is the inclusion of sociology in their curricula, with practical treatment of the problems of capital and labor and of criminology as related to the moral development of individuals.

During the year special attention has been drawn to the Union Theological Seminary by efforts at compromise between the seminary and the Presbyterian Church. The breach was opened in 1892 by the action of the General Assembly of the Church in respect to Dr. Charles A. Briggs, accused of heresy. The death of Dr. Briggs, which occurred while the compromise measure was pending, closed a service of great distinction in the seminary, where he had just completed his fortieth year as a teacher. (See also XXXI, *Religion and Religious Organizations.*)

At the graduation exercises of the Hartford Theological Seminary it was announced that $753,000 had been subscribed for the endowment of two new schools, the Hartford School of Religious Pedagogy and the Kennedy

School of Missions. The union of the three institutions under the charter of the Hartford Seminary Foundation, with 21 professors and 180 students, marks an advance in interdenominational education which will be followed with interest throughout the English-speaking world and on all mission fields.

Medical Schools.—The numerical decrease in medical schools already referred to is a sign of advancing standards. Admission requirements are more rigid than five years ago, and the course of medical training has been prolonged. In many states there is a movement toward centering medical education in a few strong schools and extending state control over all. Eleven states report only one medical school each and that controlled by the state, usually through the state university. Three other states will probably soon be added to the number. In fact, weak medical schools are doomed by the mere cost of equipment, the laboratories and hospitals now required for medical training. Sound public sentiment on this subject has been created by the persistent efforts of the Council on Medical Education of the American Medical Association, supported by the reports of the Carnegie Foundation, and states are making liberal appropriations to their medical schools, while large endowments are forthcoming for private schools. From the current report of the Bureau of Education it appears that the three richest medical schools are Tulane University Department of Medicine, with an endowment of $1,000,000; Harvard University Medical School, with $3,500,000; and the College of Physicians and Surgeons, Columbia University, with $1,572,305. To this group will be added the Medical School of Chicago University, for which millions are being pledged; Vanderbilt's medical department, for which Andrew Carnegie will provide $1,000,000 on the condition that it is freed from denominational control, and California University, which has received an equal sum for medical research. A unique endowment of this class is that of $1,500,000 from the General Education Board to the medical school of Johns Hopkins University. The fund is intended for the establishment of a center of clinical education and research under the charge of eminent physicians who, if the plan is approved, will give up practice in order to devote their entire time to research investigation and teaching, their salaries being commensurate with those services. The endowment will be known as the William H. Welch Endowment Fund, in recognition of the services rendered by Dr. Welch to medical education in America. On Nov. 15, President Schurman of Cornell University announced a gift of $4,350,000 for the university medical school.

Nurse Training Schools. — Schools for nurses, which are included in the general province of medical education, increased in number from 432 in 1900 to 1,057 in 1912, with an increase in the number of students in training from 11,164 to 32,389. The relation of these schools to the hospitals has become a subject of consideration, and their independent administration is urged by many authorities. The subject is discussed in all its aspects in a recent bulletin of the Bureau of Education (No. 7, 1912).

Law Schools.—The legal profession sustains a relation to the public very different from that of the medical profession; nevertheless a similar tendency to elevate the standards of professional training is noticeable. The majority of law schools require a three years' course for graduation, and a few the longer period of four years. Several schools offer summer courses which count for graduation the same as the work in the regular terms, and thus students are enabled to complete even the extended course of training within two or three years.

Correspondence Schools.—The correspondence idea offers a striking illustration of business foresight; it originated with the enterprise at Scranton, Pa., which has grown into a multiple system; the directors report that an average of 100,000 scholarships are taken out annually. The Home Correspondence School, Springfield, Mass., has a large membership of teachers in its rural school course, and its textbooks are in great demand. The leading railroad companies have followed the example set by the Union Pacific and include correspond-

ence schools in their educational work for their employees. While every subject of knowledge and technique has been brought within formal schemes of correspondence, the courses in agriculture at this time exceed all others in their registration. Not less than 25 state and five private institutions conducted correspondence courses in agricultural subjects in the course of the year.

Education in Public Health.—The movement for educating people in matters pertaining to health is world-wide. Literally hundreds of organizations are now at work for this purpose throughout the United States, while there is scarcely a city or county without its central health committee. The American Medical Association organized in July, 1909, a committee for public-health education among women, with Dr. Rosalie Slaughter Morton, of New York City, as its first chairman. The purpose of the committee was to interest women's clubs in study for the prevention of disease. It was soon found that organizations of men were interested equally with the women. At the end of the third year, July, 1912, work had been organized in 45 states, 238 counties, Alaska, Philippines, Hawaii, and the Canal Zone. Almost every organization in the country has similar committees devoting their efforts to one or more of the problems of health and sanitation.

The latest outcome of this movement is organized effort for social purity and the teaching of sex hygiene. The American Federation for Sex Hygiene was incorporated in 1912; its stated objects are: the education of the public in the physiology and hygiene of sex, including the study and application of every means, educational, sanitary, moral, and legislative, for the prevention of vice and its diseases. No less than twelve other organizations have been formed for the same purpose.

EDUCATION OF DEPENDENT PEOPLES

Alaska. — The system of public schools for the natives of Alaska, under the general supervision of the Commissioner of Education, comprises 80 schools, with an enrollment of 4,018 pupils distributed over a territory of 580,000 sq. miles. The service employs six supervising officers and 108 teachers, with an auxiliary force of 10 physicians, eight nurses, and three hospital attendants. The medical division is directed by Dr. Krulish, specially detailed for this duty from the Public Health Service. This is the second unique experiment in the interests of the natives, the first being the reindeer experiment, which has succeeded beyond all anticipations. The reindeer now owned by the natives represent a capital of $601,700, and in 1912 yielded an income of $25,000, in addition to meat and hides used by the natives themselves.

Indians.—In addition to the charge of the schools for the natives of Alaska, the Government controls the education of its Indian wards. The total enrollment in the various classes of schools under the Bureau of Indian Affairs as reported in 1912 was 46,987.

Porto Rico.—The Federal Government has also assumed responsibility for education in our outlying possessions, although the direct control of these systems is committed to the local department of education. Under the administration of Dr. Edwin G. Dexter, Commissioner of Education in Porto Rico from 1907 to 1912 inclusive, the enrollment in the common schools increased from 76,696 to 160,657, or by 124 per cent., and the average attendance from 44,218 to 114,834, an increase of 160 per cent. Secondary schools made great progress in the same time, their registration rising from 182 to 1,547 students. The efforts to provide for the much-needed agricultural training of the islanders have been promoted by the application to this purpose of a part of the Federal appropriations known as the Morrill and Nelson funds.

Philippine Islands.—In the Philippines successful efforts are made to develop the native arts. Above 90 per cent. of all children attending the

elementary schools take some form of manual training, and many of them attain skill in the making of hats and baskets, which has real commercial value. An important experiment is in progress in connection with the school of household industries and handwork for women in Manila. Every student, after completing her course, is expected to establish a class in her own district. These classes are kept in close relation with the Bureau of Education, which assists in disposing of the products of their artistic skill. The School of Arts and Trades at Manila is flourishing, and so great is the demand for its students that all who complete their course satisfactorily are at once placed in remunerative positions. (See also VIII, *Territories and Dependencies.*)

Panama Canal Zone.—In the Panama Canal Zone an excellent school system is in operation, modeled on that of the states. The report for 1912 shows that 26 buildings were used for school purposes, of which 11 were for white children and 15 for colored. The expenditure for education amounted to $100,997.

Liberia. — The American Colonization Society, which has held in trust the Donovan fund, intended primarily to promote the emigration of negroes from America to Africa, has turned over the accumulated proceeds of the fund to the Liberian government for the promotion of the public school system in the republic and the establishment of an industrial school to be modeled after Hampton and Tuskegee. The fund amounts to $65,511, and yields a revenue of about $5,000.

EDUCATIONAL FOUNDATIONS AND ASSOCIATIONS

General Education Board.—The appropriations made by the General Education Board for the fiscal year ending June 30, 1913, were as follows:

Conditional contributions to colleges and universities	$1,190,000
For professors of secondary education in the southern states for the purpose of carrying on a public high school propaganda	30,550
To selected schools for negroes	40,000
For agricultural demonstration work in the southern states	255,050
For agricultural demonstration work in Maine and New Hampshire	25,916
For state supervisors of negro rural schools in several of the southern states	22,636
For a Rural Organization Service in connection with the United States Department of Agriculture	37,500
Other appropriations	11,965
Total	$1,613,617

The Carnegie Foundation for the Advancement of Teaching has for its main object the administration of the pension fund committed to its trust. The latest report of the Foundation, 1912, contains discussions of the problems of college entrance requirements and of admission to advanced standing, and in addition presents an exhaustive study of pension schemes, in the light of which suggestions are made as to a feasible pension system for public schools. From the first pension payment, July 25, 1906, to the end of the fiscal year ending Sept. 30, 1912, the Foundation had distributed $2,077,813.64 in retiring allowances and $238,590.36 in widows' pensions. On Sept. 30, 1912, there were in force 315 allowances and 83 widows' pensions, the total annual distribution for these amounting to $570,423. The endowment fund comprised, at the date named, gifts of the founder, $13,000,000, and accrued interest, $1,000,000, in all $14,000,000.

Peabody Fund. — The final allotment of the Peabody Fund closes the distribution of the principal with the appropriation of $500,000 to the George Peabody College for Teachers at Nashville, contingent upon the raising of an additional million dollars by Nov. 1, 1913, which is practically secured. In the 46 years of its operations the Peabody Fund has yielded above five and a half million dollars for education in the South.

The National Education Association held its fifty-first annual convention at Salt Lake City, Utah, July 5-11, Dr. Edward T. Fairchild of the New Hampshire College of Agriculture presiding. In point of numbers the meeting fell below those of recent years, the attendance barely reaching 3,000. The programmes of the general and the section meetings were as usual

overcrowded, but two subjects overshadowed all others, vocational education and rural uplift. In connection with the latter subject Commissioner Claxton roused enthusiasm over a plan for bringing a library within the reach of every hamlet. At present, of 3,500 counties in the United States, there are 2,200 in which there is no library of 5,000 books or over. A committee was formed to advise with any committee or commission which may be appointed by Congress to frame legislation for Federal aid for vocational education. The unanimous vote of the Association for president for 1913-14 was given to Dr. Joseph Swain, President of Swarthmore College, Swarthmore, Pa.

The American Federation of Arts held its fourth annual convention in Washington on May 15 and 16. Prominent among the topics discussed was the importance of small museums, especially as adjuncts of educational institutions and the various relations of industrial art. The president of the Federation is Robert W. de Forest, and the secretary, Miss Leila Mechlin, 215 West 57th Street, New York.

The American Federation of Catholic Societies met at Milwaukee on Aug. 10. Among the chief subjects of discussion were the problem of religious teaching in public schools and the policy of taxing Catholic citizens to maintain public schools when they have also to support parochial schools.

The General Federation of Women's Clubs is not only educational in all its activities, but maintains a special department for the investigation of educational problems. At the last biennial meeting of the Federation, held in San Francisco in June, 1912, it was reported that the department had concentrated its efforts upon the special task of urging the teaching of personal sex hygiene in the normal schools. In connection with the patrons of the National Education Association, an investigation has been conducted during the year for the purpose of ascertaining the extent to which the subject is already taught in schools of high grade. Out of 165 schools reporting in response to the inquiry, 138 were giving the subject a place. The recommendation was made that a committee of experts be organized, representing various experiences and points of view, to outline a definite course in personal and sex hygiene for teachers. Through such activities as this the General Federation has become a powerful force in educational matters.

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LIBRARIES

JAMES I. WYER

Buildings. — The most important library building enterprise of the year was the Harry Elkins Widener Memorial Library at Harvard, the plans for which have been accepted, ground broken and construction begun. The building will cost about $2,000,000, and will have stack capacity for 2,000,000 volumes. The distinctive feature of the plan is the provision throughout the stack of 300 readers' stalls, each with table, chair, and shelves, for the accommodation of individual students side by side with the books. Another unusual feature is the provision of as many as 70 private offices for those professors whose laboratory material is mainly of books. (*Library Journal*, XXXVIII, 267.)

Two great municipal libraries have within the year moved into office buildings. The Los Angeles Public Library has occupied three floors and the roof (50,000 sq. ft.) of the largest office building in that city, taking a seven-year lease at an annual rental of 44 cents per square foot. The Cleveland Public Library has occupied two floors (55,000 sq. ft.) of the Kinney and Leaven building for a probable term of from six to ten years. In occupying these quarters the remarkable feat was achieved of moving 250,000 books and all the library equipment from old to new quarters without interrupting library service to the public for a single day, 40,000 books being moved between evening and morning.

The use of these large areas entirely unplanned for library work, while of course temporary and in the reasonable certainty that ample library buildings eventually will be provided, offers interesting problems in impromptu library administration with the much-prized advantage of location in the heart of the city.

Legislation.—Nowhere is the appreciation of the public library and its work better reflected than in new library laws. Laws providing more liberal financial support have been passed in Minnesota (Ch. 509), raising the maximum tax levy from two to three mills; in Iowa (Ch. 68), fixing the maximum tax levy at five mills; in Massachusetts, increasing the maximum sum which may be voted for the support of a public library from $2,000 to $4,000 on all valuations of less than $600,000. Kansas, in a new law (Ch. 80 and 327) designed to facilitate the establishing of public libra-

ries, reduced the maximum tax levy in first- and second-class cities from two and three mills to four-tenths and one mill respectively. While this seems a reduction and may indeed work out so in practice, yet the policy of assessing taxable property at more nearly market value may not greatly reduce library funds resulting from the new rates.

New laws almost uniformly grant larger powers as well as funds to library authorities. Iowa (Ch. 100) exempted libraries from the operation of the statute for commission-governed cities and provides for their control under the general state library law, thus reflecting a strong dissatisfaction, existing not alone in Iowa, with the effect of commission government upon public-library control (Tyler, *National Municipal Review*, April, 1913). Nebraska (Ch. 152) authorized a librarians' retiring pension fund in the city of Omaha, retirement to be optional after 35 years' service, compulsory after 40.

Rural library extension is the subject of more laws than any other topic. Delaware increased the appropriation of its State Library Commission in order to develop house to house delivery of books throughout the state; Iowa (Ch. 70) and Minnesota (Ch. 509) empowered any rural unit of government, a township or county, to contract for library privileges with the nearest public library; Minnesota (Ch. 563) encouraged cooperation between schools and public libraries; North Carolina doubled the appropriation for its Library Commission; Texas provided for a system of farmers' county public libraries; South Dakota (Ch. 217) established a Library Commission on the usual lines, to which it gives the management of the state library, a sensible feature tending toward a centralization of state library activities which might well be copied in other states and which finds further expression in an Oregon law (Ch. 149) separating the state library from the library of the Supreme Court and placing it under the government and administration of the State Library Commission. A step in the opposite direction is noted in Indiana (Ch. 255), which has separated the administration of its legislative reference bureau from that of the state library.

Necrology.—The library profession has suffered grievous losses from death in 1913. These are in detail:

John Shaw Billings, March 11, an ex-president of the American Library Association, and since 1896 Director of the New York Public Library; an impressive memorial meeting for Dr. Billings was held in the library building on April 25 (*Library Journal*, XXXVIII, 212, 458).

Walter Kendall Jewett, since 1907 librarian of the University of Nebraska.

Josephus Nelson Larned, Aug. 15, from 1877 to 1897 superintendent of the Buffalo library and an ex-president of the American Library Association (*ibid.*, 545).

Otis H. Robinson, formerly librarian of the University of Rochester (*ibid.*, 118).

Steingrimur Steffansson, May 4, since 1890 employed in the Newberry Library, Chicago, and in the Library of Congress (*ibid.*, 378).

William H. Tillinghast, Aug. 22, for 31 years connected with the Library of Harvard College, latterly as assistant librarian.

Reuben Gold Thwaites, Oct. 22, since 1886 superintendent of the Wisconsin State Historical Society; president of the American Library Association 1900, and member of the Wisconsin Free Library Commission since 1895.

American Library Association.—It is encouraging and significant to note the solid growth and the increasing professional activities of the American Library Association, established in 1876, which, since 1909, has maintained executive offices in Chicago, in charge of a salaried secretary, which acts as a general clearing house for library information, correspondence being conducted with all parts of the world. The Association has over 2,500 members from every American state and 15 foreign countries. Its income from membership during the last fiscal year was $6,236.18; from endowments, $5,449.33; and from sales of publications, $15,849.29; a total of $27,534.80.

Its annual meeting was held at the Hotel Kaaterskill in the Catskills,

June 23-29, with an attendance of 900. The papers and proceedings appeared in the *Bulletin* of the Association for July, 1913, and the meeting is summarized in *New York Libraries*, III, 314. The officers for 1913-14 are: president, Edwin H. Anderson, director of the New York Public Library; vice-presidents, Hiller C. Wellman, Springfield (Mass.) City Library, and Gratia Countryman, Minneapolis Public Library; secretary, George B. Utley, 78 E. Washington St., Chicago.

Gifts. — The Carnegie corporation continues its frequent gifts to libraries, the most important of which this year has been $750,000 to San Francisco. The *Library Journal* for May, 1913 (p. 305), summarizes the Carnegie gifts for the first four months of the year, and the American Library Association in its *Bulletin* for March of each year notes gifts to libraries for the preceding calendar year.

The California General Assembly has voted to accept and erect a separate building for the famous Sutro library, which will become a part of the state library.

Henry Crandall of Glens Falls, N. Y., left an estate valued at $500,000 to trustees to be devoted, on the death of his widow, now 82 years old, to a public library, a public park, and a boys' saving club, the proportions to be applied to each to be determined solely by the trustees.

Retirements. — The retirements of the year include William R. Eastman, after 22 years' service in the New York State Library (*New York Libraries*, III, 251); Henry M. Utley, who becomes librarian emeritus of the Detroit Public Library after 27 years of service; and John H. Arnold, after 41 years as librarian of the Harvard Law School.

Appointments. — Notable appointments of the year include: Edwin H. Anderson, Director of the New York Public Library, in succession to Dr. John Shaw Billings; William R. Watson, Chief of the Division of Educational Extension, New York State Library, in succession to William R. Eastman; Adam Strohm, librarian of the Detroit Public Library, succeeding Henry M. Utley; and Malcolm G. Wyer, librarian of the University of Nebraska, in succession to Walter K. Jewett.

Bibliographic Enterprises. — The publication of the eighth edition of the *Decimal Classification* only two years after the issue of edition seven is new proof of the wide and growing use of this, the leading system of library classification. The new schedules in political science, economics, engineering, agriculture, Canada, and California are greatly extended and many corresponding index entries are added.

For three years the Committee on Bibliography of the American Historical Association has been at work upon a union list of collections on European history in American libraries, the second printing (although still a "trial edition") of which appeared earlier in the year. In it 2,200 sets are noted and the holdings of these sets by 94 libraries are indicated. The best showing is made by Harvard University Library, which owns more than 1,900 of the listed sets. This union list will be an invaluable aid to the research student in European history in locating the nearest copy of required material.

Volume seven of Charles Evans' *American Bibliography* has appeared during the year. This is a chronological dictionary of all books and pamphlets printed in the United States from 1639 to 1820. It is to be complete in 11 or 12 volumes, and the present volume brings the record to 1789.

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XXXV. CHRONOLOGY AND NECROLOGY

AMERICAN CHRONOLOGY

JANUARY

1.—The parcel post service is inaugurated throughout the United States.

2.—Congress reassembles after the Christmas recess.

The New Hampshire legislature elects as Governor, Samuel D Felker (Dem.).

3.—Joseph W. Bailey (Dem.), U. S. Senator from Texas, resigns.

4.—R. W. Johnston (Dem.) is appointed to the U. S. Senate from Texas, succeeding Joseph W. Bailey, resigned.

President Taft declares himself in favor of submitting the Panama Canal controversy to arbitration in the event of failure of diplomatic negotiations.

After a funeral service in New York, the body of Whitelaw Reid is interred at Tarrytown.

6.—Hearings preliminary to the drafting of tariff legislation are begun by the Ways and Means Committee of the House of Representatives.

John W. Heiskell is appointed to the U. S. Senate from Arkansas, succeeding Jeff Davis, deceased.

The Supreme Court hands down decisions disapproving a plan suggested by the Union Pacific Co. for the dissolution of its merger with the Southern Pacific Co., and reversing the U. S. Circuit Court in the cotton pool case, which is returned to the lower court with directions to proceed with the trial of the defendants.

7.—An investigation of an alleged Shipping Trust is begun by the Committee on Merchant Marine and Fisheries of the House of Representatives.

The steamship *Rosecrans* is wrecked on Peacock Spit, Oregon, with a loss of 31 lives.

12.—Floods cause much distress at many points along the Ohio River.

The steamship *Uranium* grounds outside Halifax harbor; the 883 passengers and the crew are rescued.

13.—The Electoral Colleges of the different states meet and formally cast their ballots for President and Vice-President; the Republican electors of Utah and Vermont cast their ballots for Vice-President for Nicholas Murray Butler.

Judge Robert W. Archbald is found guilty in the Senate on five of the thirteen articles of impeachment against him, and sentenced to removal from the bench and disqualification from holding a Federal office.

14.—The House defeats an amendment to the Post Office Appropriation bill annulling an executive order placing fourth-class postmasters in the classified service.

The following are elected to the U. S. Senate: from Massachusetts, John W. Weeks (Rep.), for the term expiring 1919; from Idaho, W. E. Borah (Rep.), for the term expiring 1919; from Michigan, Wm. A. Smith (Rep.), for the term expiring 1919; from Montana, Thos. J. Walsh (Dem.), for the term expiring 1919; from Colorado, John F. Shafroth (Dem.), for the term expiring 1919, and Chas. S. Thomas (Dem.), for the term expiring 1915; succeeding Chas. J. Hughes, deceased.

15.—Edwin C. Burleigh (Rep.) is elected to the U. S. Senate from Maine, for the term expiring 1919.

The U. S. cruiser *Denver* is sent to Acapulco, Mexico, where Americans are endangered by a threatened rebel attack.

Cipriano Castro is refused admittance to the United States under the immigration law.

16.—The Senate passes the Legislative, Executive, and Judicial Appropriation bill.

17.—The House accepts the conference report on the Immigration bill.

20.—The Senate rejects the conference report on the Immigration bill because of a provision requiring of immigrants certificates of character.

President Taft formally accepts an appointment as Kent Professor of Law in Yale University.

21.—The House passes the Army appropriation bill.

The following are elected to the U. S. Senate for the term expiring 1919: from Oregon, Harry Lane (Dem); from Nebraska, George W. Norris (Rep.); from Rhode Island, Le Baron B. Colt (Rep.); from Minnesota, Knute Nelson (Rep.); from Iowa, W. S. Kenyon (Rep.); from Oklahoma, R. L. Owen (Dem.)

22.—Thos. Sterling (Rep.) is elected to the U. S. Senate from South Dakota, for the term expiring 1919.

23.—The Senate passes the Culberson bill prohibiting contributions by corporations to political conventions and primary campaigns.

John K. Shields (Dem.) is elected to the U. S. Senate from Tennessee, for the term expiring 1919.

The reply of the United States to Great Britain's protest on the exemption of American shipping from the payment of Panama Canal tolls, delivered Jan. 20, is made public.

An officer and six privates of the U. S. troops in the Philippines are killed during a fight with Igorrotes in Jolo.

24.—The Senate approves a resolution providing for a memorial to Lincoln in Washington.

The following are elected to the U. S. Senate: from Tennessee, W. R. Webb, (Dem.), for the term expiring March 4, 1913, succeeding Newell Sanders, interim appointment; from Idaho, James H. Brady (Rep.), for the term expiring 1915, succeeding Weldon B. Heyburn, deceased.

25.—The House accepts the report of a second conference on the Immigration bill.

28.—The House passes the River and Harbors appropriation bill.

The following are elected to the U. S. Senate: from Wyoming, F. E. Warren (Rep.), for the term expiring 1919; from Kansas, Wm. H. Thompson (Dem.), for the term expiring 1919; from New Mexico, A. B. Fall (Rep.), for the term expiring 1919; from Nevada, Key Pittman (Dem.), for the term expiring 1919; from South Carolina, Benj. Tillman, for the term expiring 1919; from New Jersey, Wm. Hughes (Dem.), for the term expiring 1919; from Texas, Morris Sheppard (Dem.), for the term expiring March 4, 1913, succeeding R. M. Johnston, interim appointment, and also for the term expiring 1919; from Arkansas, W. H. Kavanaugh (Dem.) for the term expiring March 4, 1913, succeeding John N. Heiskell, interim appointment.

29.—The House passes a bill appropriating $2,000,000 for a memorial to Lincoln.

The Senate adopts a resolution extending the scope of the investigation into campaign funds to include the campaign of 1912.

The following are elected to the U. S. Senate for the term expiring 1919: from Arkansas, Jos. T. Robinson (Dem.); from Delaware, Willard Saulsbury (Dem.).

30.—Cipriano Castro is denied admittance to the United States on appeal to the Department of Commerce and Labor.

31.—The House adopts the report of a third conference on the Immigration bill.

George P. McCabe, Solicitor of the Department of Agriculture, resigns as of March 4.

FEBRUARY

1.—The Senate passes a resolution to amend the Federal Constitution by limiting the tenure of the Presidency to one term of six years; the Senate also adopts the conference report on the Immigration bill.

President Taft approves a resolution providing for the erection of a Lincoln memorial in Washington.

3.—The assent of Delaware completes the ratification of the income-tax amendment to the Federal Constitution.

The U. S. Supreme Court affirms a decision of a lower court dismissing an indictment of the United Shoe Machinery Co., as a combination in restraint of trade.

7.—The House Committee investigating the money trust attempts unsuccessfully to obtain testimony from William Rockefeller at Brunswick, Ga.

Four American warships are ordered to points in Central America to forestall a threatened revolutionary outbreak.

8.—The House passes the Webb bill prohibiting the shipment in interstate traffic of intoxicating liquors intended for sale in prohibition territory.

10.—The Senate passes the Webb bill prohibiting shipment of liquor into prohibition territory.

Four American warships are despatched to points in Mexico for the protection of American citizens.

Sixteen persons are killed in a riot between striking miners and police near Mucklow, W. Va.

11.—Five members of the West Virginia legislature are arrested on the charge of accepting bribes in connection with the election of a U. S. Senator.

12.—The electoral vote for President and Vice-President is canvassed in a joint session of the Senate and House.

13.—Twenty-nine officials of the National Cash Register Co., on trial at Cincinnati for violation of the Sherman Act, are found guilty.

14.—The House passes the Diplomatic and Consular appropriation bill.

President Taft vetoes the Immigration bill.

Individuals and corporations comprising the dissolved Bathtub Trust, on trial at Detroit for violation of the Sherman Act, are found guilty; the next day fines aggregating $51,000 are imposed.

15.—Memorial exercises for the late James S. Sherman are held in the U. S. Senate.

The right of Cipriano Castro to enter the United States is affirmed by the U. S. District Court at New York.

16.—Joseph H. Hertz, of New York, is elected Chief Rabbi of the United Hebrew Congregations of the British Empire.

17.—The House passes the Public Buildings bill.

President Taft assures President Madero, of Mexico, that no steps leading to intervention are contemplated by the United States.

Twenty-nine officials of the National Cash Register Co. are sentenced at Cincinnati to jail terms of from three months to a year.

18.—The Senate repasses the Immigration bill over the President's veto.

The House passes the Pension appropriation bill.

The representatives of the railroads operating east of Chicago agree to the arbitration of the demands of their firemen under the Erdman Act.

19.—The House fails in an attempt to pass the Immigration bill over the President's veto.

20.—The Senate passes the Diplomatic and Consular appropriation bill.

21.—The Senate passes the Sundry Civil appropriation bill.

Nathan Goff (Rep.) is elected to the U. S. Senate from West Virginia for the term expiring 1919.

22.—President Taft orders a force of 4,000 men to proceed to Galveston, Texas, for possible service in Mexico.

24.—The Senate passes the River and Harbor appropriation bill, and also the La Follette bill providing for the physical valuation of railroads.

President Taft orders to Galveston an additional force of 6,000 men.

25.—The Senate passes the Pension and Indian appropriation bills.

Woodrow Wilson resigns as Governor of New Jersey as of March 1.

26.—The Senate passes the Post Office appropriation bill, and also the bill creating a Department of Labor.

The House passes the Naval appropriation bill with provision for only one battleship.

Emilio Rabasa is appointed Ambassador to the U. S. from Mexico.

27.—The Senate passes the Agricultural appropriation bill.

28.—The Senate amends the Naval appropriation bill to provide for the construction of two battleships.

President Taft vetoes the Webb-Kenyon bill prohibiting the shipment in interstate commerce of liquors intended for sale in prohibition territory; the Senate repasses the bill over the President's veto.

The report of the committee appointed to investigate the alleged Money Trust is presented to the House.

The reply of Great Britain to the American note on Panama Canal tolls is delivered to Secretary Knox.

The strike of garment workers in New York City is ended.

MARCH

1.—The House passes over the President's veto the bill prohibiting the shipment of intoxicants in interstate commerce into prohibition territory.

The Senate passes the General Deficiency appropriation bill.

President Taft signs the bill providing for the physical valuation of railroads.

The rejoinder of the British Government to the reply of the U. S. to Great Britain's protest against exemption of American coastwise shipping on the Panama Canal, is made public at Washington.

Woodrow Wilson's resignation as Governor of New Jersey takes effect; he is succeeded by James F. Fielder, president of the senate.

4.—The House passes the Sundry Civil appropriation bill over the President's veto.

President Taft signs the Public Buildings bill and the bill creating a Department of Labor; withholds his signature from the bill for the improvement of conditions of labor in the merchant marine; and vetoes the Sundry Civil appropriation bill.

The third and final session of the Sixty-second Congress ends.

President Taft appoints John Basset Moore and George Gray (reappointment) representatives of the U. S. in the Permanent Court of Arbitration at the Hague.

Woodrow Wilson is inaugurated President, and Thomas R. Marshall, Vice-President of the United States; Wm. H. Taft, twenty-seventh President, retires.

The Senate of the Sixty-third Congress is assembled in special session.

5.—President Wilson's appointments to Cabinet offices are confirmed by the Senate.

John W. Kern, of Indiana, is chosen Democratic leader in the Senate; the House Democrats, in caucus, choose Champ Clark as Speaker and Oscar W. Underwood as Chairman of the Committee on Ways and Means.

John H. Marble is nominated as member of the Interstate Commerce Commission.

7.—The Senate Democrats, in caucus, choose as president *pro tempore* James P. Clarke, of Arkansas.

Scores are killed and injured in an explosion of a shipload of dynamite on board the *Alune Chine* in Baltimore harbor.

10.—Chas. P. Neill is nominated Commissioner of Labor Statistics, and Daniel C. Roper, First Assistant Postmaster-General.

11.—President Wilson issues a statement on the friendly attitude of his administration towards the cause of good government in the Latin American republics.

Hearings are begun in New York in the arbitration of the demands of the railway firemen.

13.—John Skelton Williams is nominated Assistant Secretary of the Treasury; Franklin D. Roosevelt, Assistant Secretary of the Navy; Beverly D. Galloway, Assistant Secretary of Agriculture; and Edwin F. Sweet, Assistant Secretary of Commerce.

Henry F. Hollis (Dem.) is elected to the U. S. Senate from New Hampshire.

A severe storm causes scores of deaths and immense lamage to prosperity in the southern states.

14.—Ratifications are exchanged at Washington for the extension for five years from June 4, 1913, of the arbitration treaty between France and the United States.

15.—President Wilson issues a proclamation convening Congress in extra session on April 7.

John Burke is nominated Treasurer of the United States.

The trial, under martial law, of forty-nine persons on charges growing out of the strike of coal miners is begun at Paint Creek Junction, W. Va.

A modified plan for the dissolution of the Union Pacific-Southern Pacific merger is disapproved by the California Railroad Commission and withdrawn.

18.—President Wilson announces the withdrawal of the United States from the Six Power Group for the financing of the Chinese Republic.

20.—Huntington Wilson, Assistant Secretary of State, resigns.

21.—A storm of great violence causes

scores of deaths and much damage to property in the South and Middle West.

22.—The resignation of Willis L. Moore, Chief of the Weather Bureau, to take effect July 31, is announced.

23.—A violent storm in the Middle West causes over 250 deaths and much destruction of property; Omaha, Neb., is the chief sufferer.

25.—Floods in Ohio, Indiana and Pennsylvania, especially severe at Dayton, O., cause hundreds of deaths and immense damage to property.

26.—The legislature of Illinois elects to the U. S. Senate James H. Lewis (Dem.) for the term expiring 1919, and Lawrence Y. Sherman (Rep.) for the term expiring 1915.

28.—Details of proposals made by the United States to Colombia on Feb. 15, for the adjustment of differences arising out of the secession of Panama and the cession of the Panama Canal route, are made public.

Great damage is caused by floods at Albany, Troy, and other cities along the Hudson River.

APRIL

1.—William H. Taft assumes his duties as Kent Professor of Law in Yale University.

2.—The United States notifies the other powers of her intention to recognize the Chinese Republic.

4.—The Japanese Ambassador in Washington informally protests against land-tenure legislation pending in the California legislature offensively discriminating against Japanese.

The Progressive members of the House of Representatives meet in open caucus.

Benito Villanueva is appointed Minister to the United States from Argentina.

6.—The appointment of Francis G. Caffey as Solicitor of the Department of Agriculture is announced in Washington.

A strike of street-railway employees, accompanied by riotous conditions, begins in Buffalo.

7.—The Sixty-third Congress assembles in special session; the Underwood Tariff bill is introduced in the House, and Champ Clark is reëlected Speaker.

Dr. Eusebio A. Morales is appointed Minister to the U. S. from Panama.

An election on constitutional amendments in Michigan results in the defeat of woman suffrage and the adoption of the initiative, referendum and recall.

8.—President Wilson reads his first message to the Senate and House of Representatives assembled in joint session.

The Democrats in the House reject a proposal for an open caucus.

The approval of Connecticut completes the ratification of the amendment to the Federal Constitution providing for the direct election of U. S. Senators.

11.—The Republicans in the House meet in open caucus.

The street railway strike in Buffalo is ended.

12.—John Bassett Moore is nominated as counselor to the Department of State.

14.—After a funeral service at New York, the body of J. Pierpont Morgan is interred at Hartford, Conn.; a memorial service is held in Westminster Abbey, London.

15.—John J. Mitchell (Dem.) is elected to Congress from the Thirteenth District of Massachusetts, succeeding John W. Weeks (Rep.), resigned.

Walter H. Page is nominated as ambassador to Great Britain; John A. Osborne, as Assistant Secretary of State; and Wm. H. Osborn, as Commissioner of Internal Revenue.

The California Assembly passes a bill designed to exclude Japanese from ownership of land in California.

16.—Willis L. Moore is removed by President Wilson from the post of Chief of the Weather Bureau.

17.—William C. Harris is nominated as Director of the Census, and Henry S. Breckenridge, as Assistant Secretary of War.

18.—President Wilson protests to Governor Johnson, of California, against a clause aimed against Japanese in land-tenure legislation pending in the California legislature.

19.—The Democratic members of the House complete a ten-day caucus on the Underwood Tariff bill.

21.—The Tariff bill is reintroduced in the House and referred to the Committee on Ways and Means.

22.—The House passes the Sundry Civil appropriation bill, with a clause protecting labor unions from prosecution under the anti-trust law, and the Indian Appropriation bill.

The Underwood Tariff bill is reported to the House by the Ways and Means Committee without change.

President Wilson appeals to the Governor and legislature of California for the removal from pending land-tenure legislation of clauses offensively discriminating against Japanese.

23.—The House begins general debate on the Tariff bill.

The award of the board of arbitration in the dispute between the eastern railroads and their firemen is filed in New York.

Ninety-six miners are killed by an explosion in the Cincinnati mine of the Pittsburgh Coal Co., at Courtney, Pa.

24.—President Wilson despatches Wm. J. Bryan, Secretary of State, to California to attempt to avert the passage of offensive land-tenure legislation.

Wm. J. Bryan presents to the diplomatic representatives in Washington a plan for securing the peace of the world.

25.—The striking coal miners in West Virginia vote to return to work on terms proposed by Governor Hatfield and accepted by the operators.

28.—The House concludes general debate on the Tariff bill.

Wm. J. Bryan, Secretary of State, delivers to the California legislature the views of President Wilson on the pending land bill.

29.—The House begins consideration of amendments to the Tariff bill.

30.—Wm. G. McAdoo, Secretary of the Treasury, announces that hereafter Government depositories will be required to pay 2 per cent interest on public deposits.

MAY

1.—President Wilson addresses political meetings in Newark and Elizabeth, N. J., in support of jury reform.

2.—President Wilson concludes a conference with New Jersey political leaders with an address in Jersey City.

3.—The California legislative passes a revised bill prohibiting alien ownership of land.

An international conference on the One Hundred Years of Peace Celebration meets in New York.

Francis L. Patton resigns as president of Princeton Theological Seminary.

5.—The Court of Appeals of the District of Columbia affirms the conviction for contempt of Samuel Gompers, John Mitchell and Frank Morrison, but modifies the sentences.

6.—Four New York police inspectors are convicted of conspiracy.

7.—The Senate passes the Sundry Civil appropriation bill with provisions exempting labor organizations and agricultural associations from prosecution under the Sherman Act.

President Wilson issues an executive order requiring fourth-class postmasters to undergo civil-service examinations.

George W. Guthrie is nominated as Ambassador to Japan; Gaylord M. Saltzgaber as Commissioner of Pensions; and John Purroy Mitchel as Collector of the Port of New York.

8.—The House passes the Underwood Tariff bill.

9.—Japan makes formal representations to the United States against the California land-tenure legislation.

10.—H. Olin Young (Rep.), Representative in Congress from Michigan, resigns his seat.

11.—President Wilson appeals to Governor Johnson, of California, for the postponement of action on the land-tenure legislation.

A conference of Republican leaders is held in Chicago.

12.—The U. S. Supreme Court denies the petition of the Government for a rehearing of the Minehill Railroad case.

13.—An international tribunal for the arbitration of claims of Americans and Britons meets in Washington.

The New Jersey Senate rejects a jury-reform bill passed the previous day by the House.

14.—Four important eastern railroads make formal application to the Interstate Commerce Commission for a reopening of the advanced rate cases of 1910.

Wm. C. Redfield, Secretary of Commerce, warns manufacturers that wage reductions alleged to be due to tariff revision will be investigated.

Tornadoes in Nebraska cause several deaths and much destruction of property.

16.—The Senate rejects a resolution to hold hearings on the Tariff bill and refers it to the Committee on Finance.

Governor Hunt, of Arizona, signs a bill prohibiting alien ownership of land.

18.—The waters of the Pacific Ocean are admitted to the western end of the Panama Canal.

19.—Governor Johnson, of California, signs the Alien Land-Tenure bill; the United States replies to the representations of Japan.

David Starr Jordan resigns as president of Leland Stanford University and is appointed chancellor.

20.—George W. Guthrie is confirmed as Ambassador to Japan, and Gaylord Saltzgaber as Commissioner of Pensions.

A suit to dissolve the U. S. Shoe Machinery Co. under the Sherman Act is begun in Boston.

22.—The Senate authorizes the Committee on Banking and Currency to hold hearings on the Currency bill.

Anthony Caminetti is nominated as Commissioner-General of Immigration.

24.—The Senate resolves to investigate industrial conditions in the West Virginia coal fields.

State Senator Stephen J. Stilwell, of New York, is convicted by a jury of soliciting a bribe.

Thirty-six persons are killed and scores injured in the collapse of a pier at Long Beach, Cal.

26.—President Wilson issues a statement denouncing the activity of a tariff lobby in Washington.

27.—The St. Louis and San Francisco Railway is placed in the hands of a receiver.

29.—The Senate passes a resolution providing for the investigation of the President's charges of the activity of a tariff lobby.

Andrieus A. Jones is nominated as Assistant Secretary of the Interior; Clay Tallman as Commissioner of the General Land Office; and Cato Sells as Commissioner of Indian Affairs.

30.—The National Maine Memorial Monument is unveiled in New York.

31.—The Seventeenth Amendment to the Federal Constitution, providing for the direct election of U. S. Senators, is proclaimed by the Secretary of State.

The Postmaster General publishes a report accusing Frank H. Hitchcock, his predecessor, of unjustifiable methods of bookkeeping and of false economy.

The arbitration treaty between Great Britain and the United States is extended for a period of five years from June 5.

Theodore Roosevelt obtains a judgment in a suit for libel against George A. Newett, at Marquette, Mich.

JUNE

2.—A committee of the Senate begins an investigation of the alleged existence of a tariff lobby in Washington.

Thaddeus A. Thomson is nominated as Minister to Colombia.

4.—Japan presents a second note of protest against the California land-tenure legislation.

7.—John P. White, President, and 18 other officials of the United Mine Workers of America, are indicted at Charleston, W. Va., for conspiracy in restraint of trade.

9.—The Supreme Court hands down a decision in the Minnesota rate cases, upholding the right of the state to fix intrastate rates on interstate railroads.

10.—Cornelius Ford is nominated as Public Printer, and Charles M. Galloway and Hermon W. Craven as Civil Service Commissioners.

The Supreme Court hands down a decision upholding the validity of the newspaper publicity law.

Dr. Laura Muller arrives in the United States as a special envoy of Brazil.

11.—Secretary of the Treasury McAdoo announces his readiness to issue emergency currency under the Aldrich-Vreeland Act in case of need.

12.—American troops in the Philippines capture a position held by rebellious Moros with a loss of six killed.

Six persons are killed and many injured in a rear-end collision on the New York, New Haven and Hartford Railroad at Stamford, Conn.

13.—The Senate passes the Sundry Civil appropriation bill.

The Senate Committee on Woman Suffrage reports favorably a constitutional amendment granting the suffrage to women.

William E. Gonzales is nominated as Minister to Cuba; Benjamin L. Jefferson as Minister to Nicaragua; and Edward J. Hale as Minister to Costa Rica.

14.—Japan assures the United States of her readiness to renew the arbitration treaty which expires Aug. 24.

The Gatun locks on the Panama Canal are completed.

16.—Walker W. Vick is appointed general receiver of customs in Santo Domingo.

The Supreme Court hands down decisions in 22 cases involving the right of states to fix intrastate rates on interstate railroads.

American troops in the Philippines finally defeat the rebellious Moros with a further loss of seven men.

17.—By resolution of the Secretaries of Agriculture, Commerce, and the Treasury, the operation of the Food and Drugs Act is extended to cover meat and meat products.

Thomas Nelson Page is nominated as Ambassador to Italy; and Pleasant A. Stovall as Minister to Switzerland.

Curtis Guild, ambassador to Russia, resigns.

18.—The Senate passes a bill raising the diplomatic post at Madrid to the rank of an embassy.

Victor H. Olmsted, Chief of the Bureau of Statistics, Department of Agriculture, is suspended.

The Hamburg-American liner *Imperator* arrives at New York on her maiden voyage.

19.—Thirteen persons are killed in a collision of two electric trains near Vallejo, Cal.

The Appellate Division of the New York Supreme Court sets aside the conviction of Charles H. Hyde, former chamberlain of New York City, and dismisses the indictment against him.

20.—The Underwood Tariff bill is submitted to the Senate Democratic caucus.

21.—John L. McNab, U. S. District Attorney at San Francisco, resigns because of the postponement of two important cases by the Attorney-General.

Henry Van Dyke is nominated as Minister to the Netherlands, John D. O'Rear, as Minister to Bolivia, and Thomas Ewing, as Commissioner of Patents.

22.—A hundred persons are injured in the derailment of a train on the Pennsylvania Railroad near Genessee, N. Y.

23.—President Wilson delivers a message to Congress recommending immediate passage of a new banking and currency law.

President Wilson signs the Sundry Civil appropriation bill, with a clause exempting labor organizations and farmers' associations from prosecution under the Sherman Act.

24.—President Wilson accepts the resignation of John L. McNab and orders immediate prosecution of the Diggs-Caminetti case.

A dust explosion and fire in a grain elevator at Buffalo causes death or injury to over 50 persons.

25.—The House Democrats in caucus decide upon the abolition of the Commerce Court.

The House passes a bill imposing an internal revenue tax of $200 a pound on opium.

26.—The Currency bill is introduced in both Houses of Congress.

Albert G. Schmedemann is nominated as Minister to Norway; Benton McMillin as Minister to Peru; and Robert Lee Metcalfe as Civil Governor of the Canal Zone.

The Interstate Commerce Commission orders an inquiry into the adequacy of freight rates on eastern railroads.

28.—An agreement for the renewal of the arbitration treaty between the United States and Japan is signed at Washington.

30.—The U. S. District Court for the district of Utah approves a plan for the dissolution of the Union Pacific-Southern Pacific merger.

JULY

1.—Fifty-five thousand Union and Confederate veterans of the Civil War begin at Gettysburg, Pa., a five-day celebration of the fiftieth anniversary of the Battle of Gettysburg.

2.—A conference of Progressive party leaders is held at Newport, R. I.

3.—Japan presents to the United States a supplementary note of protest on the California land-tenure legislation.

7.—The Senate Democratic caucus approves the Tariff bill.

Frederic C. Penfield is nominated as Ambassador to Austria-Hungary.

The First-Second National Bank of Pittsburg is closed by Government officials.

8.—The conductors and trainmen on eastern railroads approve a strike by a vote of 72,473 to 4,210.

Charles S. Mellen resigns the presidency of the Boston & Maine and Maine Central railroads.

9.—The House unanimously authorizes an independent investigation of the Congressional lobby.

11.—James W. Gerard is nominated as Ambassador to Germany; and Joseph E. Willard as Minister to Spain.

14.—A conference in the White House agrees upon amendments to the Erdman Act to avert a threatened strike of conductors and trainmen on eastern railroads.

15.—A bill amending the Erdman Act passes both houses of Congress and is signed by President Wilson.

Augustus O. Bacon is elected U. S. Senator from Georgia for the term ending March 4, 1919, in the first election held under the provisions of the Seventeenth Amendment.

16.—Henry Lane Wilson, Ambassador to Mexico, is summoned to Washington for conference with the President.

The United States replies to the latest Japanese note of protest against the California land-tenure legislation.

17.—Charles S. Mellen resigns the presidency of the New York, New Haven and Hartford Railroad.

18.—The Senate Committee on Finance reports the Tariff bill.

Charles S. Hartman is nominated as Minister to Ecuador, and William L. Chambers as Commissioner of Mediation and Conciliation.

19.—The Secretary of State refers to the Senate the draft of a proposed treaty with Nicaragua.

22.—Archibald C. Hart (Dem.) is elected to the House of Representatives from the Sixth District of New Jersey, to succeed James Martin, deceased.

Royal Meeker is nominated as Commissioner of Labor Statistics.

Thirty-one persons were killed and scores injured in a fire in the factory of the Binghamton Clothing Company, Binghamton, N. Y.

23.—James M. Sullivan is nominated as Minister to the Dominican Republic.

George W. Hays is elected Governor of Arkansas to succeed Joseph T. Robinson, resigned.

The strike of silk workers at Paterson, N. J., is abandoned.

24.—L. E. Pinkham is nominated as Governor of Hawaii.

The Government brings suit under the Sherman Act against the American Telephone and Telegraph Co. at Portland, Ore.

The entire Michigan National Guard is called out to preserve order in a strike in the Calumet copper district.

25.—Postmaster-General Burleson issues an order authorizing increase in the weight limit and reduction of rates in the parcel post, effective Aug. 15.

George C. Todd is nominated as Assistant to the Attorney-General, and Charles S. Hamlin as Assistant Secretary of the Treasury.

Howard Elliott is elected President of the New York, New Haven and Hartford Railroad.

26.—John W. Davis, of West Virginia, is nominated Solicitor-General of the U. S.

An agreement is concluded for the arbitration of a wage dispute between fifty-two eastern railroads and their conductors and trainmen.

27.—The United States demands the arrest of Mexicans responsible for the shooting of Charles B. Dixon, U. S. immigration officer at Juarez.

28.—Secretary of the Treasury McAdoo charges that a decline in the price of two per cent bonds is a part of a campaign to defeat the Currency bill.

29.—Charles F. Marvin is nominated Chief of the Weather Bureau.

30.—The British Government declines the invitation to participate in the Panama-Pacific Exposition.

31.—The Secretary of the Treasury announces that he will deposit $50,000,000 of Government funds in national banks of the South and West to assist in crop movement.

It is announced at Washington that Germany has declined to participate in the Panama-Pacific Exposition.

AUGUST

1.—It is reported that Russia has decided not to participate in the Panama-Pacific Exposition.

John Purroy Mitchel is nominated for mayor of New York by a fusion committee.

2.—The Senate Committee on Foreign Relations rejects Mr. Bryan's treaty with Nicaragua.

Nineteen persons are killed and a score injured in two explosions in a mine near Tower City, Pa.

4.—Henry Lane Wilson resigns as Ambassador to Mexico; John Lind is appointed adviser to the American Embassy.

The Interstate Commerce Commission orders express companies to adopt a new block system of making rates and to make substantial reductions in tariffs.

5.—Paul S. Reinsch is nominated as Minister to China.

6.—Preston McGoodwin is nominated as Minister to Venezuela.

7.—Madison R. Smith, of Missouri, is nominated Minister to Haiti.

The first treaty to be concluded on the Bryan plan for world peace is signed between the United States and Salvador.

11.—The House Democratic caucus begins consideration of the Currency bill.

John Lind arrives in Mexico City.

12.—Henry D. Clayton (Dem.) is appointed U. S. Senator from Alabama for the remainder of the term of Joseph F. Johnston, deceased, expiring in 1915.

13.—William J. Price, of Kentucky, is nominated as Minister to Panama.

The New York Assembly, by a vote of 79 to 45, resolves to impeach the Governor, William Sulzer, and presents eight articles of impeachment to the Senate.

14.—The Senate Democratic caucus resolves to begin the consideration of currency legislation immediately after the passage of the Tariff bill.

15.—The Senate confirms the nominations of Paul S. Reinsch as Minister to China, and Madison R. Smith, of Missouri, as Minister to Haiti.

16.—The German Government announces its decision to decline to participate in the Panama-Pacific Exposition.

17.—The steamship *State of California* strikes an uncharted rock and sinks in Cambier Bay, Alaska, with a loss of 40 lives.

20.—Francis Burton Harrison, of New York, is nominated as Governor-General of the Philippines.

The Senate confirms the nomination of Wm. J. Price as Minister to Panama.

The House Committee on the Judiciary begins an investigation of charges against Judge Emory Speer, of Georgia.

Maury I. Diggs is convicted in San

Francisco of violation of the Federal white-slave law.

21.—Senator Penrose introduces in the Senate a resolution requesting the President to send troops to Mexico to protect American interests.

Edward E. McCall is selected as Democratic candidate for Mayor of New York.

22.—A conference of bankers is held in Chicago to consider the Currency bill.

23.—The arbitration treaty between Japan and the United States expires.

25.—W. Cameron Forbes forwards to Washington his resignation as Governor-General of the Philippines.

26.—John Lind, special envoy to Mexico, confesses the failure of his mission by leaving Mexico City.

Japan presents a fourth note of protest against land-tenure legislation in California.

The House of Governors begins its sixth conference at Colorado Springs.

27.—President Wilson reads to Congress a special message on the relations between the United States and Mexico.

28.—A caucus of the Democratic members of the House of Representatives adopt the Currency bill by a unanimous vote.

Henry Morgenthau, of New York, is nominated as Ambassador to Turkey.

29.—The Currency bill as revised in caucus is reintroduced in the Senate.

31.—The last barrier at the Pacific end of the Panama Canal is blown up, and the water enters to Miraflores locks.

SEPTEMBER

2.—The House passes the bill raising the diplomatic post at Madrid to the rank of an embassy.

The Government brings suit in Philadelphia under the Sherman Act against the Reading Company for the dissolution of an alleged anthracite coal trust.

Twenty-one persons are killed and many injured in a rear-end collision on the New York, New Haven & Hartford Railroad near North Haven, Conn.

3.—The House passes a bill granting San Francisco the right to impound a water supply in Hetch Hetchy Valley.

William Howard Taft is elected president of the American Bar Association at Montreal.

Mayor William J. Gaynor, Mayor of New York, accepts reëlection on an independent ticket.

4.—The Senate confirms the nomination of Henry Morgenthau as Ambassador to Turkey.

Thomas H. Birch is nominated as Minister to Portugal, and Charles T. Vopicka, of Illinois, as Minister to Roumania, Servia and Bulgaria.

5.—The Senate Democrats in caucus agree to lower the limit of exemption from payment of income tax.

John Ewing is nominated as Minister to Honduras, and Joseph E. Willard as Ambassador to Spain.

Farley Drew Caminetti is convicted in San Francisco of violation of the Federal white-slave law.

Fire destroys 55 city blocks in Hot Springs, Ark., with a loss of $6,000,000.

6.—Dry excavation on the Panama Canal is completed.

8.—John A. Peters (Rep.) is elected to the House of Representatives from the Third District of Maine, succeeding Forrest Goodwin, deceased.

9.—The Senate passes the Tariff bill by a vote of 44 to 37.

The House passes the Urgent Deficiency Appropriation bill with an amendment abolishing the Commerce Court.

The House Committee on Banking and Currency reports the Currency bill.

10.—William J. Gaynor, Mayor of New York, dies suddenly on board the *Baltic* on his way to Ireland.

The centennial of the Battle of Lake Erie is celebrated at Put-in-Bay, O.

11.—Representatives of the House and Senate begin consideration of the Tariff bill in conference.

Justice Hasbrouck, of the Supreme Court at Kingston, N. Y., sustains the legality of the impeachment of William Sulzer, and declares him incompetent to exercise the functions of Governor.

The board of arbitration in the wage dispute between the eastern railroads and their conductors and trainmen begins its sessions in New York.

12.—The House concludes general debate on the Tariff bill.

The House passes an emergency resolution appropriating $100,000 for use in bringing American citizens out of Mexico.

15.—The Senate passes the bill appropriating $100,000 to enable American citizens to leave Mexico.

17—Maury I. Diggs and Drew Caminetti are sentenced in San Francisco to fine and imprisonment for violation of the white-slave law.

18.—The House passes the Currency bill by a vote of 285 to 85.

Joseph W. Folk (Mo.) is nominated as Solicitor for the State Department.

The trial on impeachment of William Sulzer, Governor of New York, begins in Albany.

19.—The body of Wm. J. Gaynor arrives at New York on board the *Lusitania*.

20.—Treaties embodying the Bryan peace plan are signed between the United States and Panama and Guatemala.

21.—The funeral of Mayor Gaynor is held in New York.

23.—Governor Sulzer, of New York, relinquishes his office pending the outcome of his trial on impeachment.

Primary elections for candidates for Governor in Massachusetts result in the choice of Augustus P. Gardner (Rep.), David I. Walsh, (Dem.), and Charles S. Bird (Progressive).

Primary elections for candidates for Governor in New Jersey result in the choice of James F. Fielder (Dem.), Edward C. Stokes (Rep.), and Everett Colby (Progressive).

26.—The first boat passes through the Gatun locks on the Panama Canal.

The Pennsylvania Railroad decides to sell its holdings in anthracite coal companies.

29.—The conference report on the Tariff bill is presented to both houses of Congress.

30.—The House adopts the conference report on the Tariff bill with an amend-

ment to the Senate clause imposing a tax on cotton futures.

Japan presents a further note of protest against the California land-tenure legislation.

OCTOBER

1.—A caucus of the Senate Democrats decides to accept the conference report on the Tariff bill.

Water is turned into Culebra Cut on the Panama Canal; two earthquake shocks are felt throughout the Canal Zone.

2.—The Senate adopts the conference report on the Underwood Tariff bill, receding from its amendment imposing a tax on cotton futures.

A serious flood in southern Texas causes the loss of two lives and property damage valued at $50,000,000.

George E. Davis is arrested in New York charged with complicity in the dynamiting conspiracy of the International Union of Bridge and Structural Ironworkers; Harry Jones, secretary of the Union, is arrested in Indianapolis.

3.—President Wilson signs the Underwood Tariff bill; the act goes into effect at midnight.

4.—Oscar W. Underwood announces his candidacy for the U. S. Senate from Alabama.

Theodore Roosevelt sails from New York on a lecturing and hunting tour in South America.

5.—A severe storm causes large property loss at Nome, Alaska.

6.—Francis Burton Harrison is inaugurated Governor-General of the Philippine Islands.

The American Bankers' Association, in session at Boston, recommends fundamental changes in the Currency bill.

7.—Count Vincenzo Macchi di Cellere is appointed Ambassador to the U. S. from Italy.

10.—The House passes the Urgent Deficiency appropriation bill.

The Gamboa dike on the Panama Canal is blown up and water is admitted to the Culebra cut.

13.—The United States warns President Huerta, of Mexico, that it will consider very unfavorably severe treatment of the arrested Deputies.

14.—The United States informs the Mexican Government that the Presidential elections set for Oct. 26 will not be recognized as legal and constitutional.

M. M. Neely (Dem.) is elected to Congress from the First District of West Virginia, to succeed John W. Davis (Dem.) resigned.

15.—President Wilson appoints four natives as members of the Philippine Commission.

16.—William Sulzer, Governor of New York, is found guilty on three of the articles of impeachment charged against him.

17.—William Sulzer, Governor of New York, is removed from office by the impeachment court; Martin H. Glynn, Lieutenant-Governor, becomes Governor.

18.—The Senate passes a bill prohibiting the sending of campaign funds from one state to another.

Arthur Yager is nominated as Governor of Porto Rico.

W. F. L. C. Van Rappand is appointed Minister from the Netherlands to the United States.

Emmeline Pankhurst arrives at New York and is ordered deported as an undesirable alien.

19.—Seventeen U. S. soldiers are killed and over 100 injured in a wreck caused by the collapse of a trestle on the Moline & Ohio Railroad near State Line, Miss.

20.—William Sulzer is nominated for the Assembly by the Progressives of the Sixth Assembly District in New York City.

The order of deportation in the case of Emmeline Pankhurst is reversed at the direction of President Wilson.

22.—President Wilson signs the Urgent Deficiency Appropriation bill, abolishing the Commerce Court and taking U. S. Deputy Marshals and Deputy Collectors of Internal Revenue out of the classified civil service.

An explosion in the Stag Canyon coal mine near Dawson, N. M., kills over 200 miners.

The Graduate College of Princeton University is opened.

23.—The Senate passes the Seamen's bill to promote the welfare of American seamen in the merchant marine.

Frank A. Vanderlip offers to the Senate Committee on Banking and Currency a substitute Currency bill.

25.—Congress Hall in Philadelphia is rededicated after its restoration.

27.—President Wilson defines his policy with regard to the Latin-American republics in an address before the Southern Commercial Congress at Mobile, Ala.

28.—Leon Taylor (Dem.) becomes Governor of New Jersey on the resignation of Governor Fielder.

NOVEMBER

1.—A strike of street-car workers begins in Indianapolis.

2.—The United States formally demands the resignation of President Huerta, of Mexico.

3.—The U. S. Supreme Court affirms the constitutionality of the Massachusetts law taxing foreign corporations.

The Government's suit to dissolve the International Harvester Co. under the Sherman Act is begun at St. Paul.

A treaty embodying the Bryan peace plan is concluded between the United States and Honduras.

4.—Elections are held throughout the United States; Blair Lee (Dem.) is elected to the U. S. Senate from Maryland for the term expiring in 1915.

5.—Frank Park (Dem.) is elected Representative from Georgia, succeeding S. A. Roddenbery, deceased.

6.—The entire National Guard of Indiana is ordered to Indianapolis to preserve order in the street-railway strike.

7.—A settlement is reached in the Indianapolis street-railway strike.

9.—Attorney-General McReynolds decides that the clause of the Tariff Act granting a rebate from duties on goods imported in American bottoms is void as in conflict with treaty obligations.

John Lind recommends to President Wilson that diplomatic negotiations with Mexico be terminated.

A severe storm over the Middle West and Great Lakes causes the loss of scores of lives and great destruction of vessels and other property.

10.—Dudley Field Malone, Third Assistant Secretary of State, is nominated for Collector of the Port of New York.

The board of arbitrators in the wage dispute between the eastern railroads and their conductors and trainmen file their award.

12.—A proposed conference of Democratic Senators on the Currency bill is abandoned on the announcement of Senator Owen that the bill will be reported within 10 days.

Secretary of Labor Wilson addressing the American Federation of Labor pledges the coöperation of his Department to promote the trade-union movement.

13.—Alexander Sweek is nominated as Minister to Siam, and Manuel Araullo as Associate Justice of the Supreme Court of the Philippine Islands.

A strike of engineers, conductors and trainmen begins on the Sunset Division of the Southern Pacific Railroad.

Twelve persons are killed and scores injured in the derailment of a train on the Central of Georgia Railroad near Eufaula, Ala.

17.—Frank P. Glass is appointed U. S. Senator from Alabama for the unexpired term of Joseph F. Johnston, deceased.

20.—Henry M. Pindell is nominated as Ambassador to Russia.

22.—The Senate Committee on Banking and Currency report to the Senate a disagreement on the House Currency bill and present two modifications drafted by the opposing factions of Senator Hitchcock and Senator Owen.

24.—The Senate begins general debate on the Currency bill.

President Wilson nominates three American members of the Philippine Commission: Henderson S. Martin, Secretary of Public Instruction and Vice Governor; Clinton L. Riggs, Secretary of Commerce and Police; and Winfred T. Denison, Secretary of the Interior.

The Interstate Commerce Commission begins hearings on the application of the railroads for permission to raise their rates.

Governor Blease, of South Carolina, signs paroles and pardons for 100 convicts.

25.—Jessie Woodrow Wilson, second daughter of President Wilson, is married to Francis B. Sayre in the White House.

26.—The Senate Democrats in caucus decide to hold night sessions and to permit no recess of Congress until the Currency bill is passed.

Jose Santos Zelaya, former President of Nicaragua, is arrested in New York after conviction for mûrder in Nicaragua.

27.—The 15,000 employees of the General Electric Co. at Schenectady go on strike.

28.—Samuel L. Shank, Mayor of Indianapolis, resigns, under threat of impeachment for failure to preserve order during a recent strike of street railway workers.

29.—George W. Loft (N. Y.), (Jacob Cantor (N. Y.) and Colvin D. Paige (Mass.) are sworn in as members of the House of Representatives.

L. E. Pinkham is confirmed as Governor of Hawaii.

The Government brings suit at Baltimore to dissolve the American Can Co. as a combination in restraint of trade.

The strike of the employees of the General Electric Co. at Schenectady is compromised.

John H. Finley is sworn in as Commissioner of Education of New York State.

30.—The Senate Democratic caucus completes its revision of the Owens Currency bill.

A strike of teamsters begins at Indianapolis.

DECEMBER

1.—The first session of the Sixty-third Congress ends and the second (first regular) begins.

The Supreme Court hands down decisions in the Kentucky rate case affirming the right of the state Railway Commission to fix rates on intrastate traffic; and in the suit of R. H.Macy & Co. against the American Publishers Association, denying the right of publishers to fix prices on copyrighted books.

A Federal grand jury at Pueblo, Col., return 25 indictments against the officers of the United Mine Workers of America, charging conspiracy in restraint of trade in attempting to obtain a monopoly of labor.

Fifteen suits for damages aggregating $17,800,000 are brought at New Orleans under the Sherman Act against the American Sugar Refining Co.

Raw wool goes on the free list under the terms of the Underwood Tariff Act.

2.—President Wilson reads his first annual message to Congress in joint session of the two houses.

Brand Whitlock is nominated as Minister to Belgium, and George F. Williams as Minister to Greece and Montenegro; Henry M. Pindell is renominated as Ambassador to Russia, and Winfred T. Dennison as member of the Philippine Commission.

Orders are issued to the Second Division of the U. S. Army encamped at Texas City and Galveston to prepare to go into permanent quarters on the Mexican frontier.

Heavy rains in Texas cause sudden floods in the Trinity, Brazos and Colorado Rivers.

3.—The House passes the Army Volunteer bill.

The House passes a bill to provide separate Ministers for Paraguay and Uruguay.

The House Committee on Banking and Currency begins hearings on rural credits.

Twenty-five men are killed in a fire in a cheap lodging house in Boston.

5.—A conference of Republican leaders in New York state is held in New York.

6.—President Wilson urges the Senate Committee on Foreign Relations to

ratify the treaty establishing a protectorate over Nicaragua.

The Senate passes the bill authorizing San Francisco to impound a water supply in Hetch Hetchy Valley.

The Senate adopts a resolution providing for night sessions for the consideration of the Currency bill.

The Interstate Commerce Commission approves a plan of the Postmaster-General to increase the weight limit and reduce rates in the parcel post from Jan. 1, 1914, and to admit books from March 1, 1914.

8.—The House passes a resolution advocating the suspension of naval construction by all countries for one year.

President Wilson declines to recommend to Congress the extension of the suffragè to women.

Floods in progress for several days on the Brazos River, Texas, cause over 150 deaths.

9.—The House lobby investigating committee makes its report.

10.—The directors of the New York, New Haven & Hartford Railroad vote to pass the dividend due Jan. 1, 1914.

12.—The New York legislature adjourns after passing four important measures.

Thomas F. Kane, president of the University of Washington, is removed from office by the Board of Regents.

13.—Senator Root delivers in the Senate an important speech assailing the Currency bill.

The five participants in the Patten cotton pool of 1909-10 enter a plea of *nolle contendere* in the U. S. District Court at New York and are fined $4,000 each.

15.—The Mexican Congress adjourns until April 2, 1914; rebel Zapatistas attack Federal troops within 17 miles of the capital.

FOREIGN CHRONOLOGY

JANUARY

1.—Turkey, in revised proposals to the peace conference in London, offers substantial concessions to the Balkan allies.

3.—Dr. Duarte Leite, Premier of Portugal, and his Cabinet resign.

The Balkan Allies reject the terms offered by Turkey and demand a final reply to counter proposals on Jan. 6.

Greek troops occupy the Island of Chios.

5.—The German Emperor appoints as Imperial Foreign Secretary, Herr von Jagow, German Ambassador to Italy.

6.—The Balkan Allies reject revised peace proposals offered by Turkey, and the sittings of the Peace Conference in London are suspended.

8.—Alfred Deakin resigns the leadership of the Opposition in the Australian Parliament.

Dr. Alfonso Costa becomes Premier of Portugal and completes a ministry.

10.—Roumania demands the cession by Bulgaria of all territory north of a line from Silistria to Kavarna on the Black Sea.

12.—The Six-Power Group of bankers conclude an agreement on the terms of a $125,000,000 loan to China.

Alexandre Millerand, French Minister of War, resigns his portfolio because of opposition to his reinstatement in the army of Col. du Paty de Clane.

14.—Paul Deschanel is reëlected President of the French Chamber of Deputies.

16.—The Home Rule bill passes the British House of Commons.

17.—Raymond Poincaré is elected President of the French Republic.

The six great European powers present a joint note to Turkey advising the surrender of Adrianople and the Ægean Island to the Balkan allies.

18.—Raymond Poincaré, Premier of France, and his Cabinet resign.

The British Medical Association decides to release its members from their pledges not to accept service under the National Insurance Act.

20.—Aristide Briand accepts the Premiership of France and proceeds to form a Cabinet.

22.—The Turkish National Assembly decides to accept the conditions of peace suggested by the great powers.

23.—The Kiamil Pasha Ministry is overthrown by a *coup d'etat* of the Young Turks Party in Constantinople, and Mahmud Shefket Pasha is appointed Grand Vizier; in the course of the demonstration Nazim Pasha is killed.

24.—The Norwegian Cabinet resigns.

27.—The Franchise bill before the British House of Commons is withdrawn because of the Speaker's ruling prohibiting a woman-suffrage amendment.

29.—The Balkan Allies in a formal note to Turkey declare the peace negotiations at an end.

30.—The British House of Lords rejects the Home Rule bill

The German Reichstag passes a vote of want of confidence in the Government.

Turkey, in reply to the note of the powers, offers further concessions to the Balkan Allies; the Balkan Allies denounce the armistice in operation since Dec. 3, 1912.

31.—Izzet Pasha is appoint commander-in-chief of the Turkish forces.

FEBRUARY

1—Turkey accepts the terms of peace proposed by the Great Powers.

3.—The armistice between Turkey and the Balkan Allies expires and hostilities are resumed at Adrianople and Tchatalja.

4.—Manuel Aranjo, President of Salvador, is shot and fatally wounded by political conspirators.

5.—The Welsh Church Disestablishment bill is passed by the British House of Commons.

The passage of a vote of censure against the Katsura Government in the Japanese Diet is followed by serious rioting.

Spain resumed formal relations with the Vatican.

6.—Bulgaria refuses the request of

the powers for permission for foreigners to leave Adrianople.

9.—President Madero, of Mexico, is besieged in the National Palace in Mexico City by military revolutionists under the leadership of Gen. Felix Diaz.

10.—The *Terra Nova*, the ship of the Scott Antarctic expedition, returns to New Zealand and reports that Capt. Scott reached the South Pole on Jan. 18, 1912, but perished with four companions on his return to his base of supplies.

11.—A battle begins in the streets of Mexico City between the revolutionists and the Federal troops.

Prince Katsura, Premier of Japan, and his Cabinet resign.

12.—Turkey requests intervention by the Great Powers to end the Balkan War.

Count Gomboi Yamamoto becomes Premier of Japan and proceeds to form a ministry.

13.—The Welsh Church Disestablishment bill is rejected by the British House of Lords.

The arbitration treaty between the U. S. and France is extended for a period of five years.

16.—The fighting in Mexico City is interrupted by an armistice of nine hours.

18.—President Madero, of Mexico, is deposed by the Federal troops; Gen. Victoriano Huerta is proclaimed Provisional President.

Raymond Poincaré is inaugurated President of France.

19.—Gen. Victoriano Huerta is elected provisional President, of Mexico, by the Congress and takes the oath of office; Gustavo Madero is executed by the order of Felix Diaz.

22.—Francisco I. Madero and Jose Pino Suarez, deposed President and Vice-President of Mexico, are shot and killed in Mexico City.

25.—Enrique Varela, Premier of Peru, and his Cabinet resign.

26.—Roumania accepts the powers' offer of mediation in the boundary dispute with Bulgaria.

Frederico Luna Peralta forms a new ministry in Peru.

MARCH

6.—Greek forces occupy the Turkish fortress of Yanina.

A disastrous fire destroys a large amount of property in the business section of Yokohama, Japan.

7.—The British Parliament is prorogued.

9.—Elections in Spain result in a victory for the Liberal party.

10.—The British Parliament is reopened in a new session.

12.—The British Government announces plans for a radical reconstruction of the House of Lords.

13.—President Gomez, of Cuba, yields to the protests of the United States and vetoes a bill granting amnesty to political and other criminals on the expiry of his term of office in May.

14.—The Balkan Allies announce the conditions on which they will accept the mediation of the powers.

18.—George I, King of Greece, is assassinated at Salonika; he is succeeded by his son Constantine.

Aristide Briand, Premier of France, and his Cabinet resign after a defeat in the Senate on the Electoral Reform bill.

20.—Austria makes representations to Montenegro regarding the bombardment of unfortified parts of Scutari, the treatment of Catholic prisoners, and the molestation of Austrian nationals.

21.—In reply to Austria's note, Montenegro agrees to confine the bombardment of Scutari to the fortifications, but fails to give satisfaction on the other protests.

Manuel Bonilla, President of Honduras, dies at Tegucigalpa, and is succeeded by Francisco Bertrand.

Constantine I, King of Greece, takes the oath of office at Athens.

Jean Barthou becomes Premier of France and completes a Cabinet.

22.—The great powers formulate to the Balkan Allies their views as to the proper basis of peace negotiations.

23.—Austria presents to Montenegro an ultimatum demanding immediate cessation of the bombardment of Scutari.

24.—Nicaragua places its currency system on a gold basis.

25.—Montenegro complies with Austria's demand that the civilian population of Scutari be allowed to leave the city.

26.—Winston Churchill, in the British House of Commons, proposes an international agreement for suspension of naval construction in 1914.

The fortress of Adrianople is taken by storm by the Bulgarians after a three-days' battle; the town of Tchatalja also is captured.

28.—The Great Powers unite in demanding that Montenegro abandon the siege of Scutari and withdraw her troops from Albania.

The plans of the German Government for largely increased military expenditure are made public.

APRIL

1.—Turkey accepts the terms of peace proposed by the great powers.

Montenegrin troops capture the fortress of Taraborsch, near Scutari.

2.—The body of the late King George I, of Greece, is interred at Dekeleia, near Athens.

3.—The Hamburg-American liner *Vaterland* is launched at Hamburg.

5.—The Balkan Allies reply with modified proposals to the suggestions of the great powers as to the proper basis of peace negotiations.

Ten warships representing Austria, Germany, Italy, France, and Great Britain, begin a blockade of the coast of Montenegro to force the abandonment of the siege of Scutari.

8.—The first Parliament of the Republic of China is opened at Peking.

10.—Russia announces her accord with the other powers on the Montenegrin question.

11.—The Chinese Republic is recognized by Brazil.

13.—The life of King Alphonso, of Spain, is attempted by an anarchist in the streets of Madrid.

Jose Borda Valdez is elected Provisional President of the Dominican Republic.

14.—A general strike, to enforce demands for electoral reform, begins in Belgium.

17.—The conclusion of an armistice with the Bulgarians to expire April 25, is announced at Constantinople.

18.—Grave charges are made in the German Reichstag concerning the methods of armament firms and their relations with the ministry of war.

19.—Gen. Luis Mena, the Nicaraguan revolutionist, is released from detention at Panama, by order of President Wilson.

21.—The Balkan Allies accept with certain reservations the offer of mediation of the great powers; the commander of the international blockading fleet notifies Montenegro that troops will be landed if the siege of Scutari is not raised immediately.

The Cunard liner *Aquitania* is launched at Clydesbank.

23.—The Montenegrin forces capture the fortress of Scutari and the garrison capitulates.

The armistice between the Turks and Bulgarians is extended to May 5.

24.—The general strike in Belgium is declared at an end.

26.—The international exposition at Ghent is opened by King Albert I, of Belgium.

27.—The Chinese Government concludes a loan agreement of $125,000,000 with the Five Power group of bankers.

A day of prayer for the Chinese Republic is observed throughout the Christian world.

The great powers demand the evacuation of Scutari by the Montenegrin forces.

29.—The Chinese Senate rejects the five-power loan contract.

MAY

2.—The Chinese Republic is formally recognized by the United States.

3.—The government of President Huerta, of Mexico, is formally recognized by Great Britain.

4.—Michel Oreste is elected President of Haiti.

5.—Montenegro agrees to evacuate Scutari and to leave its final disposition to the determination of the powers.

The Chinese National Assembly declares illegal the signing of the Five Power loan without consent of the assembly.

6.—The British House of Commons rejects on second reading a bill extending the suffrage to women property owners.

Italy is condemned by the Hague Court to indemnify France for two steamers seized during the Turco-Italian War.

7.—The Home Rule and Welsh Disestablishment bills are reintroduced in the British House of Commons.

President Huerta, of Mexico, demands recognition of his government by the United States.

8.—Gen. Ismael Montes is elected President of Bolivia.

9.—China formally accepts a loan of $125,000,000 from the Five Power group.

General Vukotitch forms a new Ministry in Montenegro.

14.—Guatemala yields to the demand of Great Britain for a resumption of interest payments.

An international naval force takes possession of Scutari.

16.—Italian forces in Tripoli fight a severe battle with Turks and Arabs near Derna.

20.—Morris G. Menoca is inaugurated President of Cuba.

The Mexican Congress approves the terms of $100,000,000 loan agreement with French bankers.

22.—Fighting occurs between Greek and Bulgarian forces near Salonika.

24.—Princess Luise, of Prussia, only daughter of the German Emperor, is married at Berlin to Prince Ernst Augustus of Cumberland.

The steamer *Nevada* is sunk by contact mines in the Gulf of Smyrna.

26.—Servia demands a revision of the treaty of alliance with Bulgaria.

27.—The Great Powers demand the immediate signing of the preliminary treaty of peace by the Balkan Allies.

29.—The French Chamber of Deputies approves the policy of the Barthou Ministry.

30.—The Canadian Senate rejects the Naval Aid bill for the construction of three battleships for the British navy at a cost of $35,000,000.

A treaty of peace between Turkey and the Balkan Allies is signed at London.

Count Romanones, Premier of Spain, and his Cabinet resign, but resume office at the request of King Alphonso.

31.—A general election in Australia results in the defeat of the Labor party.

JUNE

4.—Dr. von Lukacs, Premier of Hungary, and his Cabinet resign.

9.—Count Stephan Tisza forms a new Cabinet in Hungary.

10.—The British House of Commons passes the Irish Home Rule bill on second reading.

Count de Romanones, Premier of Spain, and his Cabinet resign.

11.—Shevket Pasha, Grand Vizier of Turkey, is assassinated in Constantinople; Prince Said Halim is appointed Grand Vizier.

13.—An agreement for the restoration of diplomatic relations between France and Venezuela is signed at Caracas.

14.—Count Romanones, Premier of Spain, forms a new Cabinet and resumes office.

15.—M. Pasitch, Premier of Servia, and his Cabinet resign.

16.—The silver jubilee of Emperor William II, of Germany, is celebrated throughout Germany.

17.—The British House of Commons passes the Welsh Disestablishment bill on second reading.

King Peter, of Servia, refuses to accept the resignation of M. Pasitch and his Cabinet.

19.—The British House of Commons absolves Sir Rufus Isaacs, Attorney-General, and David Lloyd-George, Chancellor of the Exchequer, of charges of corruption growing out of purchases of stock in the American Marconi Company.

A severe battle between the Italians and Arabs occurs at Ettangi, Tripoli.

20.—Andrew Fisher, Premier of Australia, and his Cabinet resign.

21.—Joseph H. Cook is invited to form a Cabinet in Australia.

24.—Servia severs diplomatic relations with Bulgaria.

25.—The Bulgarians attack the Servian army on the Zletovo River in Macedonia.

The elections in the Netherlands result in the defeat of the Government and the election of a Liberal Chamber.

27.—Theodorus Heemsterk, Premier of the Netherlands, and his Cabinet resign.

28.—The Lötschberg tunnel is formally opened.

29.—A general engagement lasting several days begins between the Bulgarians and the Servians and Greeks.

30.—The German Reichstag passes the Army bill.

JULY

4.—After five days of fighting the Greeks and Servians decisively defeat the Bulgarians at Kilkish and Kotchana.

5.—After three days of rioting and bloodshed a strike of miners on the Rand is settled by General Botha.

7.—The British House of Commons passes the Home Rule bill on third reading.

8.—The British House of Commons passes the Welsh Disestablishment bill on third reading.

The Servians compel the Bulgarians to evacuate Kotchana and Ishtib.

9.—The Chinese House of Representatives ratifies the treaty with Russia regarding Mongolia.

10.—Roumania declares war on and invades Bulgaria; Bulgaria appeals to Russia to arrange an armistice with the Servians and Greeks.

14.—The British House of Commons passes on third reading a bill to abolish plural voting.

15.—The British House of Lords rejects the Irish Home Rule bill a second time.

Dr. Daneff, Premier of Bulgaria, and his Cabinet resign.

16.—Revolts against the government of Yuan Shih-kai begin in southern China.

Robert Bridges is appointed Poet Laureate of England.

17.—Three members of the Argentine Cabinet resign.

18.—Tsen Chun-hsuan is proclaimed President by the Chinese revolutionists.

19.—The French Chamber of Deputies passes the three-years' service bill.

20.—M. Radoslavoff forms a coalition Cabinet in Bulgaria.

22.—The British House of Lords rejects the Welsh Disestablishment bill a second time.

Turkish forces occupy Adrianople and Kirk-Kilisseh.

24.—The British House of Lords rejects a bill to abolish plural voting.

25.—Austria warns Servia and Greece against too great humiliation of Bulgaria in the conclusion of peace.

The French Chamber of Deputies passes the budget of $960,000.

26.—The Roumanian invading army halts within 10 miles of the capital of Bulgaria.

29.—A conference of ambassadors at London settles the status of the new state of Albania.

30.—Representatives of the Balkan Allies meet at Bucharest to arrange terms of peace.

The French Senate passes the budget.

A revolutionary movement by ex-President Castro is reported in Venezuela.

AUGUST

1.—President Huerta, of Mexico, declines to resign or to permit foreign interference.

P. W. A. Cort van der Linden is invited to form an extra-parliamentary Cabinet in the Netherlands.

6.—The Mexican Minister of Foreign Affairs declares that John Lind's mission will not be regarded favorably without recognition of the Huerta Government.

Sun Yat-sen, leader of the Chinese revolutionary party, flies from China on a ship bound for Japan.

7.—The French Senate passes the three-years' service bill.

8.—The British House of Commons ratifies a contract with the Marconi Company for the construction of an imperial chain of wireless stations.

10.—The Balkan states sign a treaty of peace at Bucharest, Roumania.

15.—The British Parliament is prorogued.

18.—Venezuelan Government troops recapture the towns in the hands of the Castro revolutionists.

19.—The Turkish Council of State decides to evacuate all territory west of the Maritza River on condition of being allowed to retain Adrianople.

28.—The Palace of Peace is formally opened at the Hague.

SEPTEMBER

4.—Manuel, former King of Portugal, is married at Sigmaringen, Germany, to Princess Augustine Victoria, of Hohenzollern.

7.—A demonstration against China for the murder of Japanese at Nanking occurs at Tokio.

8.—The Chinese House of Representatives approves a reconstruction of the Cabinet.

11.—Japan demands an indemnity for the murder of Japanese subjects by Chinese in Nanking, and an apology for insults to the Japanese flag.

12.—Rodolfo Reyes, Mexican Minister of Justice, resigns.

13.—China agrees to the compensation and apology demands by Japan.

15.—An agreement with Bulgaria regarding the possession of Adrianople is announced at Constantinople.

17.—A treaty is signed between Tur-

key and Bulgaria by which Turkey retains Adrianople and Kirk-Kilisseh.

19.—Mexican revolutionists dynamite a railroad train near Saltillo, killing 50 soldiers and passengers.

24.—Five hundred delegates meet at Belfast and organize for the resistance of Ulster to the government of an Irish Parliament.

Federico Gamboa, Secretary of Foreign Relations, is nominated for President of Mexico by the Catholic party.

26.—Japan presents an ultimatum to China demanding the promised indemnity and apology within three days.

27.—Twenty thousand men of Ulster join in a demonstration at Belfast against Irish home rule.

28.—China formally apologizes to Japan for the hostile demonstrations at Nanking.

Gen. Felix Diaz is nominated for President of Mexico by the Labor party.

OCTOBER

2.—The Chinese National Assembly decides that the Presidential term shall be five years with not more than one reëlection.

6.—Yuan Shih-kai is elected first President of the Chinese Republic; Japan and Russia formally recognize the Republic.

The Mexican Cabinet is reorganized with Querido Moheno as Minister of Foreign Affairs.

7.—Li Yuen-Leng is elected Vice-President of the Chinese Republic.

9.—The steamship *Volturno* of the Uranium Line, bound for New York from Rotterdam, burns at sea with a loss of 136 lives; 526 are rescued the following day.

10.—President Huerta, of Mexico, dissolves the Mexican Congress and calls an extraordinary election for Oct. 26.

One hundred and ten members of the Mexican Chamber of Deputies, supporters of a resolution of protest to President Huerta, are arrested by order of the President.

Yuan Shih-kai is inaugurated President of China.

13.—Lord Alverstone resigns as Lord Chief Justice of England.

14.—Hundreds of miners lose their lives in a coal-mine explosion at Sengenhydd, Wales.

17.—Twenty-eight men are killed in an explosion of a German army dirigible in midair near Berlin.

18.—Winston Churchill repeats his invitation to Germany to join Great Britain in suspending naval construction for one year.

Austria presents an ultimatum to Servia demanding the evacuation of Albanian territory occupied by Servian troops.

21.—Sir Rufus Isaacs is sworn in as Lord Chief Justice of Great Britain.

22.—David Lloyd-George announces the details of the Government's land scheme.

25.—Premier Romanones, of Spain, and his Cabinet resign, on the rejection of a vote of confidence in the Cortes.

26.—A Presidential election is held in Mexico.

A general election is held in Italy, resulting in the return of the Giolitti Government.

27.—Gen. Felix Diaz seeks refuge in the American consulate at Vera Cruz and is placed on board an American warship.

Eduardo Dato forms a Conservative Cabinet in Spain.

NOVEMBER

3.—The Cuban Congress is opened.

5.—Yuan Shih-kai, President of China, issues a proclamation expelling over 300 members of the Kuo-Ming-targ party from the National Assembly.

Otto, King of Bavaria, is deposed and his cousin is proclaimed as Ludwig III.

7.—An earthquake at Abancay, Peru, kills more than 200 persons.

9.—President Huerta, of Mexico, declares the recent elections void and announces that he will retain his office.

10.—Premier Asquith declares that Great Britain cordially supports the United States in her dealings with Mexico.

The Chino-French Bank signs a contract for a $30,000,000 loan to China.

Mendel Beiliss is acquitted at Kieff, Russia, of the charge of ritual murder.

11.—The French Chamber of Deputies rejects a woman-suffrage amendment to the Electoral Reform bill.

The Nobel Prize for Physics is awarded to Prof. Heike Onnes, of the University of Leyden; for Chemistry to Professor Werner, of Zurich.

12.—John Lind fails to induce President Huerta, of Mexico, to dissolve Congress and leaves Mexico City for Vera Cruz.

Bulgaria demands that Greece accord full rights to Bulgarians in Macedonia and release all prisoners of war.

Yuan Shih-kai announces a proposed plan for the reconstruction of the Chinese Parliament.

The International Conference on Safety at Sea opens at London.

13.—The Chinese Parliament is suspended by vote of the remaining members.

A treaty between Turkey and Greece is concluded at Athens.

The Nobel Prize for Literature is awarded to Rabindranath Tajore, a Hindu poet.

14.—Representatives of several European Powers urge President Huerta to yield to the demands of the United States.

The Cunard liner *Pannonia* rescues 103 passengers and crew from the burning steamship *Balmes*.

15.—The Mexican Congress assembles; President Huerta reiterates his determination to continue in office.

Mexican revolutionists under Gen. Pancho Villa capture Juarez.

16.—President Huerta dismisses Manuel Garza Aldape, Minister of the Interior, who had urged concessions to the United States.

17.—Mexican revolutionists capture the town of Victoria.

18.—The French Chamber of Deputies passes the Electoral Reform bill with provision for proportional representation.

20.—President Huerta presents his message to the Mexican Congress.

23.—The German and Austrian Ministers in Mexico City take measures to organize the defense of their legations.

The Italian cruiser *San Giorgio* goes ashore in the Straits of Messina.

24.—Mexican Government forces begin an attack to recapture Juarez from the revolutionists.

25.—The Mexican Federal army attacking Juarez is completely routed.

27.—Mexican revolutionists capture the town of Mazatlan.

The new Italian Parliament is opened.

30.—Chihuahua is evacuated by Mexican Government troops.

DECEMBER

1.—The French Chamber of Deputies approves a loan of $260,000,000.

2.—Seven Mexican Federal generals offer to surrender to Francisco Villa; Government troops evacuate Guaymas.

Premier Barthou, of France, and his Cabinet resign after defeat in the Chamber on the question of exempting the new *rentes* from taxation.

4.—Adolfo de la Lama, Mexican Minister of Finance, leaves for France to obtain funds for the Huerta Government.

The Reichstag passes a vote of censure on the Imperial Chancellor for his attitude towards German officers responsible for brutal treatment of Alsatian peasants.

5.—Mexican revolutionists capture Colima.

The Cuban Senate passes an Amnesty bill.

Kaiser Wilhelm orders the transfer of the regiment responsible for outrages in Alsace.

6.—King George V issues a proclamation prohibiting the importation of arms and ammunition into Ulster.

8.—Gen. Francisco Villa occupies Chihuahua, Mexico.

Gaston Doumergue, Premier of France, completes a Cabinet.

9.—The Mexican Congress declares the October elections void and confirms Huerta as Provisional President until July, 1914.

10.—Mexican revolutionists under General Castro begin an attack on Tampico.

Prince Said Halim, Grand Vizier of Turkey, resigns.

Chang-hsun, commander of the Government troops at Nanking, China, proclaims the independence of Kiang-Su Province.

Two Nobel peace prizes are awarded: to Elihu Root, of the United States, and Henri La Fontaine, of Belgium.

11.—The Budget Committee of the German Reichstag refuses to reconsider the decision of the Government not to participate in the Panama-Pacific exposition.

The Doumergue Ministry announces its policy to the French Chamber of Deputies and receives a vote of confidence.

12.—The fighting at Tampico, Mexico, is suspended on the threat of the American naval commander, Rear-Admiral Fletcher, to open fire on the combatants.

Russia proposes to the Powers the withdrawal of all foreign troops from the Province of Chi-li, China.

The "Mona Lisa" of Leonardo da Vinci, stolen from the Louvre in August, 1911, is discovered in Florence.

13.—The Mexican revolutionists are repulsed from Tampico with considerable loss.

15.—The British Royal Commission on Delay in the Law Courts makes its report.

AMERICAN NECROLOGY

ALLEN, Charles, Boston, Jan. 13, aged 86; former justice of the Supreme Court of Massachusetts.

ALLEN, Oscar Dana, Ashford, Wash., March 5, aged 71; chemist and metallurgist.

ALTMAN, Benjamin, New York, Oct. 7, aged 73; merchant.

AMORY, Charles Walter, Boston, Nov. 5, aged 71; manufacturer.

AMEN, Harlan Page, Exeter, N. H., Nov. 9, aged 60; principal of Phillips Exeter Academy.

ANUNDSEN, Brynild, Decorah, Ia., March 23, aged 69; publisher.

ANCONA, Sydenham W., Reading, Pa., June 20, aged 89; Representative in Congress from Pennsylvania, 1861-67.

APHTHORP, William Foster, Vevey, Switzerland, Feb. 19, aged 84; author and music critic.

ARNOLD, Marshall, Benton, Mo., June 12, aged 67; Representative in Congress from Missouri, 1891-95.

BABCOCK, Charles, Ithaca, Aug. 26, aged 84; professor emeritus of architecture in Cornell University.

BACON, John Mosby, Portland, Ore., March 19, aged 68; Brigadier-General, U. S. A., retired.

BAKER, James Heaton, Mankato, Mich., May 26, aged 84; Brigadier-General, U. S. A.

BALDWIN, Edwin Candee, New York, Oct. 3, aged 48; bacteriologist.

BARSTOW, John Lester, Shelburne, Vt., June 28, aged 81; governor of Vermont, 1882-84.

BAYLES, James Copper, New York, May 7, aged 68; engineer and journalist.

BENJAMIN, Wayland Everett, New York, Sept. 10, aged 59; lawyer and author of legal works.

BERRY, James Henderson, Bentonville, Ark., Jan. 30, aged 71; U. S. Senator from Arkansas, 1885-1907.

BILLINGS, John Shaw, New York, March 10, aged 73; former director of the New York Public Library.

BINNEY, John, Middletown, Conn., June 12, aged 69; professor of Old Testament literature in the Berkeley Divinity School.

BLACK, Francis Swett, Troy, N. Y., March 22, aged 60; Governor of New York, 1896-98.

BLAKE, Lillie Devereux, New York, Dec. 30, aged 81; suffrage leader.

BLUMENBERG, Marc A., New York,

March 27, aged 62; editor of the *Musical Courier*.

BOUCICAULT, Aubrey, New York, July 10, aged 44; actor.

BOWMAN, Edward Morris, New York, Aug. 28, aged 65; organist.

BRADY, Anthony Nicholas, London, July 22, aged 70; financier.

BRIGGS, Charles Augustus, New York, June 8, aged 72; professor of Biblical Theology in the Union Theological Seminary.

BRIGGS, Frank Obadiah, Trenton, N. J., May 8, aged 61; U. S Senator from New Jersey, 1907-13.

BRISTOW, Algernon Thomas, Brooklyn, March 26, aged 62; physician.

BROKAW, Isaac Vail, Elberon, N. J., Sept. 28, aged 77; merchant.

BROWN, Addison, New York, April 9, aged 83; U. S. district judge, 1881-91.

BROWN, George, Indianapolis, June 29, aged 78; Rear-Admiral, U. S. N., retired.

BROWN, Henry Billings, Bronxville, N. Y., Sept. 4, aged 77; associate justice of the U. S. Supreme Court, 1890-1906.

BROWN, John George, New York, Feb. 8, aged 81; painter.

BROWN, Vernon H., New York, Aug. 5, aged 81; American agent of the Cunard Steamship Co.

BROWN, William Garrott, New Canaan, Conn., Oct. 19, aged 45; author of historical works.

BROWNE Francis Fisher, Chicago, May 11, aged 69; editor of the *Dial*.

BURT, Horace Greeley, Chicago, May 19, aged 64; engineer, former president of the Union Pacific Railroad.

BUSCH, Adolphus, Langenschwalbach, Germany, Oct. 10, aged 71; brewer.

CASEY, Silas, Warm Springs, Va., Aug. 14, aged 71; Rear-Admiral, U. S. N., retired.

CASWELL, Thomas Thompson, Weekapaug, R. I., July 8, aged 73; Rear-Admiral, U. S. N., retired.

CHAMBERLAIN, Leander Trowbridge, Pasadena, Cal., May 9, aged 75; clergyman and author.

CHAPIN, Robert Colt, Whitefield, N. H., Sept. 12, aged 50; professor of economics in Beloit College.

CHAPMAN, Henry Leland, Brunswick, Me., Feb. 24, aged 67; professor of English literature in Bowdoin College.

CLARK, John Howe, Amherst, N. H., Nov. 30, aged 76; medical director, U. S. N., 1893-99.

CLARKE, John Eastman, Cambridge, Mass., Nov. 22, aged 63; professor of education in Boston University.

CLARKE, William Horatio, Reading, Mass., Dec. 11, aged 73; organist.

COATES, Edwin Morton, Washington, Sept. 13, aged 77; Brigadier-General, U. S. A., retired.

COCHRANE, Henry Clay, Philadelphia, April 27, aged 70; Brigadier-General, U. S. Marine Corps, retired.

COES, Mary, Brookline, Mass., Aug. 18, aged 52; Dean of Radcliffe College.

COLLIER, Price, Island of Funen, Denmark, Nov. 3, aged 53; author.

COMPTON, Alfred George, New York, Dec. 12, aged 78; educator.

COOLEY, Alford Warriner, Silver City, N. M., July 19, aged 40; justice of the Supreme Court of New Mexico.

CRAGIE, David Johnston, Washington, Dec., 14, aged 73; Brigadier-General, U. S. A., retired.

CRAMP, Charles Henry, Philadelphia, June 6, aged 85; shipbuilder.

CRAWFORD, Samuel Johnson, Topeka, Kan., Oct. 21, aged 78; Governor of Kansas, 1865-69.

CROCKER, George Glover, Cohasset, Mass., May 26, aged 69; lawyer and author.

CROSS, Joseph Elizabeth, N. J., Oct. 29, aged 69; U. S. district judge.

CURTIN, Roland Gideon, Philadelphia, March 14, aged 74; physician and author.

CURTIS, John Green, New York, Sept. 20, aged 69; physician, emeritus professor of physiology in Columbia University.

DAINGERFIELD, Foxhall Alexander, Lexington, Ky., Jan. 5, aged 73; horse breeder.

DANIELS, Fred Harris, Worcester, Mass., Aug. 31, aged 60; engineer and manufacturer.

DAVIS, Jefferson, Little Rock, Ark., Jan. 3, aged 50; U. S. Senator from Arkansas, 1907-13.

DEHAVEN, John Jefferson, San Francisco, Jan. 26, aged 67; judge of the U. S. district court in California.

DEMING, Clarence, New Haven, May 8, aged 64; journalist.

DIDIER, Eugene Lemoine, Baltimore, Md., Sept. 8, aged 74; author.

DOANE, William Croswell, New York, May 16, aged 81; Protestant Episcopal Bishop of Albany.

DORR, Julia Caroline Ripley, Rutland, Vt., Jan. 18, aged 87; novelist and poet.

DRAPER, Andrew Sloan, Albany, N. Y., April 27, aged 64; N. Y. State Commissioner of Education.

DUHRING, Louis Adolphus, Philadelphia, May 8, aged 68; professor emeritus of dermatology in the University of Pennsylvania.

DURAN, Facundo Mutis, Panama, June 21, aged 61; jurist, former Chief Justice of the Supreme Court of the Canal Zone.

DYE, John T., Indianapolis, April 24, aged 77; lawyer.

EASTMAN, John Robie, Franklin, N. H., Sept. 26, aged 77; astronomer, Rear-Admiral, U. S. N., retired.

EATON, Homer, Madison, N. J., Feb. 9, aged 78; treasurer of the Board of Foreign Missions of the Methodist Episcopal Church.

EATON, Joseph Giles, Norwell, Mass., March 8, aged 66; Rear-Admiral, U. S. N., retired.

FARLEY, James, Plattsburgh, N. Y., Sept. 11, aged 39; strikebreaker.

FIELD, Stephen Dudley, Stockbridge, Mass., May 18, aged 68; inventor.

FINLEY, William Wilson, Washington, Nov. 25, aged 60; president of the Southern Railway.

FINN, James, Giverny, France, Aug. 28, aged 45; artist.

FINCH, William Rufus, La Crosse, Wis., Aug. 9, aged 68; editor, U. S. Minister to Paraguay and Uruguay, 1897-1905.

FLAGLER, Henry Morrison, West Palm Beach, Fla., May 20, aged 83; capitalist.

FOOTE, Lucius Harwood, San Francisco, June 4, aged 87; U. S. Minister to Korea, 1882-83.

FORBES, Henry Prentiss, Canton, N. Y., Oct. 2, aged 64; theologian, dean of the Theological School of St. Lawrence University.

FORBES, Robert, Duluth, Oct. 25, aged 70; clergyman, M. E. Church.

FORCHHEIMER, Frederick, Cincinnati, May 31, aged 60; physician, professor of internal medicine in the University of Cincinnati, author.

FORD, Patrick, New York, Sept. 23, aged 76; editor of the *Irish World*.

FRENCH, Anne Warner, Marnhull, England, Feb. 1, aged 43; novelist.

FRITZ, John, Bethlehem, Pa., Feb. 13, aged 91; ironmaster.

GAILLARD, David Du Bose, Baltimore, Dec. 5, aged 54; Lieutenant-Colonel, U. S. A., in charge of the Culebra Cut section of the Panama Canal construction.

GARDINER, John Hays, Boston, May 14, aged 50; author, former professor of English in Harvard University.

GAYNOR, William Jay, at sea, Sept. 10, aged 62; Mayor of New York.

GILBERT, Charles Benajah, New York, Aug. 27, aged 58; educator and author.

GILLESPIE, George Lewis, Saratoga, N. Y., Sept. 27, aged 71; Major-General, U. S. A., retired.

GOODWIN, Forrest, Portland, Me., May 28, aged 49; Representative in Congress from Maine, 1913.

GREEN, John, St. Louis, Dec. 8, aged 78; physician and ophthalmologist.

GREENE, Daniel Crosby, Tokio, Sept. 15, aged 70; missionary.

GRUBB, Edward Burd, Newark, N. J., July 7, aged 71; Civil War veteran, minister to Spain, 1890.

GUNTHER, Richard W., Oshkosh, Wis., April 5; U. S. consul general at Cape Town.

HALL, Frederick Byron, Hartford, Conn., Jan. 15, aged 69; chief justice of the Connecticut Supreme Court of Errors.

HALLETT, Moses, Denver, April 25, aged 78; U. S. district judge, District of Colorado, 1877-1906.

HALLOCK, Joseph Newton, Brooklyn, March 24, aged 78; author and editor.

HALLOCK, William, Providence, R. I., May 20, aged 55; professor of physics in Columbia University.

HAVEMEYER, William Frederick, New York, Sept. 7, aged 63; banker and sugar manufacturer.

HAYDN, Hiram Collins, Cleveland, July 31, aged 81; former president of Western Reserve University.

HEARN, George Arnold, New York, Dec. 1, aged 78; merchant and art collector.

HENDERSON, John Brooks, Washington, April 12, aged 86; U. S. Senator from Missouri, 1862-69.

HEWLETT, C. Russell, Pittsburgh, Nov. 11, aged 41; dean of the School of Applied Design in the Carnegie Institute.

HILL, Frederick Stanhope, Cambridge, Mass., Sept., aged 84; author.

HISS, Philip Hanson, New York, Feb. 27, aged 44; professor of bacteriology in Columbia University.

HITCHCOCK, George, Island of Marken, Holland, Aug. 2, aged 63; artist.

HOGAN, John Joseph, Kansas City, Mo., Feb. 21, aged 84; Roman Catholic Bishop of the Diocese of Western Missouri.

HOLDEN, Liberty Emery, Bratenahl, O., Aug. 26, aged 80; newspaper publisher and capitalist.

HOLLAND, Edmund Milton, Cleveland, Nov. 24, aged 65; actor.

HOWLAND, Henry Elias, New York, Nov. 6, aged 78; lawyer.

HUBBARD, Henry Wright, New York, May 21, aged 69; treasurer of the American Missionary Society.

HUBBARD, Lucius Frederick, Minneapolis, Feb. 5, aged 77; Governor of Minnesota, 1882-87.

HUTTIG, Charles Henry, Lake Honnedaga, N. Y., July 12, aged 52; banker.

JACKSON, Joseph Cooke, New York, May 22, aged 78; lawyer, Civil War veteran, Brigadier-General, U. S. V.

JANVIER, Thomas Allibone, New York, June 18, aged 64; author.

JAYNE, Horace, Wallingford, Pa., July 9, aged 54; biologist.

JENNINGS, Martin Luther, Pittsburgh, Sept. 3, aged 66; editor of the *Methodist Recorder*.

JOHNSON, Herrick, Philadelphia, Nov. 20, aged 81; theologian and author.

JOHNSON, Mortimer L., Portsmouth, N. H., Feb. 14, aged 70; Rear-Admiral, U. S. N., retired.

JOHNSTON, Joseph Forney, Birmingham, Ala., Aug. 8, aged 70; U. S. Senator from Alabama since 1907.

JONES, Edward Franc, Binghamton, N. Y., Aug. 14, aged 85; manufacturer, Brigadier-General, U. S. N.

KEENE, James Robert, New York Jan. 3, aged 74; financier.

KEENER, William Albert New York, April 22 aged 57; jurist.

KENNY, William John, Baltimore, Oct. 23, aged 60; Roman Catholic Bishop of the Diocese of St. Augustine, Fla.

KNIGHT, Ora Willis, Portland, Me., Nov. 11, aged 39; chemist.

KOENIG, George Augustus, Houghton, Mich., Jan. 15, aged 68; professor of chemistry in the Michigan College of Mines.

KONIG, George, Baltimore, May 31, aged 57; Representative in Congress from Maryland, 1911-13.

LA LANNE, Frank Dale, Philadelphia, Feb. 1, aged 64; president of the National Board of Trade.

LE BRUN, Michael M., New York, Sept. 27, aged 56; architect.

LADD, Herbert Warren, Providence, R. I., Nov. 29, aged 70; former Governor of Rhode Island.

LARNED, Joseph Nelson, Buffalo, Aug. 16, aged 77; librarian.

LARRABEE, William Henry, Plainfield, N. J., May 13, aged 83; editor and author.

LATTIMORE, Samuel Allan, Rochester, N. Y., Feb. 17, aged 85; professor emeritus of chemistry in the University of Rochester.

LEE, Edward Merwin, New York, Jan. 1, aged 77; former Governor of Wyoming Territory.

LEE, Francis H., Boston, Oct. 7, aged 77; banker.

LEE, George Washington Custis, Ravensworth, Va., Feb. 18, aged 80; Confederate general, president emeritus of Washington and Lee University.

LITTLE, Joseph James, New York, Feb. 11, aged 71; Representative in Congress from New York, 1891-93.

LOMAX, Lunsford Lindsay, Washington, May 28, aged 77; major-general in the Confederate army.

LONGFELLOW, William Pitt Preble, Gloucester, Mass., Aug. 3, aged 76; architect and author.

LOWE, Thaddeus, S. C., Pasadena, Cal., Jan. 16, aged 80; inventor.

LYMAN, Joseph, Wallingford, Conn., March 5, aged 65; artist.

MACALISTER, James, at sea, Dec. 11, aged 73; former president of the Drexel Institute, Philadelphia.

MCBURNEY, Charles, Brookline, Mass., Nov. 7, aged 68; surgeon.

MCCREA, James, Philadelphia, March 28, aged 65; former president of the Pennsylvania Railroad.

MCCUE, Thomas J., Denver, Aug. 9; representative of Colorado on the Democratic National Committee.

MCDOWELL, Alexander, Sharon, Pa., Sept. 30, aged 68; Representative in Congress from Pennsylvania, 1893-95; Clerk of the House of Representatives, 1895-1903.

MCKENNEY, James Hall, Washington, Oct. 13, aged 76; clerk of the U. S. Supreme Court since 1880.

MCMURTRIE, William, New York, May 24, aged 62; chemist, Chief, Bureau of Chemistry, U. S. Department of Agriculture, 1873-79.

MAJOR, Charles, Shelbyville, Ind., Feb. 13, aged 56; novelist.

MARBLE, John Hobart, Washington, Nov. 21, aged 46; member of the Interstate Commerce Commission.

MARTIN, John, Topeka, Kan., Sept. 3, aged 79; U. S. Senator from Kansas, 1893-95.

MARTIN, Lewis J., Washington, May 5, aged 69; Representative in Congress from New Jersey.

MAYNARD, Washburn, Newton Centre, Mass., Oct. 24, aged 68; Rear-Admiral, U. S. N., retired.

MILLER, Cincinnatus Heine ("Joaquin"), Oakland, Cal., Feb. 17, aged 71; poet.

MILLER, Roswell, New York, Jan. 3, aged 69; chairman of the board of directors Chicago, Milwaukee & St. Paul Railroad.

MILLER, Zachariah Taylor, Pittsburgh, Nov. 14, aged 66; homeopath.

MOALE, Edward, San Francisco, Sept. 27, aged 73; Brigadier-General, U. S. A., retired.

MOFFETT, James Andrew, Palm Beach, Fla., Feb. 25, aged 62; vice-president of the Standard Oil Co. of New Jersey.

MOORE, John White, Brooklyn, March 30, aged 81; Rear-Admiral, U. S. N., retired.

MORGAN, John Pierpont,, Rome, March 31, aged 75; financier.

MORRIS, Edward, Chicago, Nov. 3, aged 47; manufacturer.

MORROW, Prince Albert, New York, March 17, aged 66; physician.

MOUNTCASTLE, Robert Edward Lee, Knoxville, Tenn., Aug. 8, aged 48; lawyer, representative of Tennessee on Democratic National Committee.

MUHLEMAN, Maurice Louis, Bronxville, N. Y., June 12, aged 60; economist and author.

MURPHY, Michael C., Philadelphia, June 4, aged 53; athletic coach.

MURRAY, Robert, Baltimore, Md., Jan. 1, aged 90; Brigadier-General, U. S. A., retired.

NASH, Paul Cleveland Bennett, London, Jan. 7, aged 35; U. S. Consul General at Budapest.

NEWCOMER, Alfonso Gerald, Palo Alto, Cal., Sept. 15, aged 49; professor of English in Leland Stanford University.

NORTHEN, William Jonathan, Atlanta, Ga., March 25, aged 77; Governor of Georgia, 1890-94.

NEBEKER, Enos H., Jan. 6, aged 76; Treasurer of the United States, 1891-93.

NILES, Kossuth, New York, Dec. 6, aged 64; Rear-Admiral, U. S. N., retired.

NORWOOD, Thomas Manson, Savannah, June 19, aged 83; U. S. Senator from Georgia, 1871-77.

OBER, Frederick Albion, Hackensack, N. J., May 31, aged 65; ornithologist, explorer and author.

OGDEN, Robert Curtis, Kennebunkport, Me., Aug. 6, aged 77; merchant and philanthropist.

OLMSTED, Marlin Edgar, New York, July 19; Representative in Congress from Pennsylvania, 1897-1911.

PALMER, Henry Wilbur, Wilkesbarre, Pa., Feb. 15, aged 73; Representative in Congress from Pennsylvania, 1901-07, 1909-11.

PALMER, Thomas Witherell, Detroit, June 1, aged 83; U. S. Senator from Michigan, 1883-89, U. S. Minister to Spain, 1889-90.

PARSONS, Eben Burt, Williamstown, Mass., Jan. 23, aged 78; registrar of Williams College.

PATTON, William Lee, New Orleans, Nov. 2, aged 90; merchant.

PEPPER, George Dana Boardman, Waterville, Me., Jan. 30, aged 79; president of Colby University, 1882-89.

PERRY, Alexander James, Washington, March 26, aged 84; Brigadier-General, U. S. A., retired.

PHETTEPLACE, Thurston M., Portland, Me., Sept. 7, aged 36; professor of mechanical engineering in Brown University.

PLATT, James Perry, Meriden, Conn., Jan. 26, aged 62; judge of the U. S. District Court in Connecticut.

POST, George Browne, Bernardsville, N. J., Nov. 28, aged 75; architect.

POTTS, Robert, Washington, June 24, aged 78; Rear-Admiral, U. S. A., retired.

POWERS, Horace Henry, Morrisville, Vt., Dec. 8, aged 78; Representative in Congress from Vermont, 1891-1901.

PRATT, Lewellyn, Norwich, Conn., June 14, aged 80; president of the Norwich Free Academy.

PRENTISS, Robert Wadsworth, New Brunswick, N. J., April 5, aged 55; professor of mathematics and astronomy in Rutgers College.

RAYMOND, Charles Walker, Philadelphia, May 3, aged 71; Brigadier-General, U. S. A., retired.

RICHARDSON, Charles Francis Lisbon, N. H., Oct. 8, aged 62; professor emeritus of English in Dartmouth College.

ROBERTS, Samuel Judson, Lexington, Ky., March 23, aged 55; editor and politician.

ROCKWOOD, Charles Greene, Caldwell, N. J., July 2, aged 71; professor emeritus of mathematics in Princeton University.

RODDENBERG, Seaborn Anderson, Thomasville, Ga., Sept. 25, aged 43; Representative in Congress from Georgia, since 1910.

ROSE, Uriah M., Little Rock, Ark., Aug. 12, aged 79; lawyer.

SABINE, William Tufnell, New York, Aug. 11, aged 74; bishop of the New York and Philadelphia Synod of the Reformed Episcopal Church.

SAINT-GAUDENS, Louis, Cornish, N. H., March 8, aged 59; sculptor.

SANFORD, Stephen, Amsterdam, N. Y., Feb. 13, aged 87; manufacturer, former Representative in Congress from New York.

SAWTELLE, Charles Greene, Washington, Jan. 4, aged 78; Brigadier-General, U. S. A., retired.

SCHUYLER, Aaron, Salina, Kan., Feb. 1, aged 85; professor of mathematics and philosophy in Kansas Wesleyan University.

SEWELL, Jotham Bradbury, Brookline, Mass., June 17, aged 88; educator, author, and clergyman.

SIMMONS, Franklin, Rome, Italy, Dec. 8, aged 74; sculptor.

SMITH, Benjamin Eli, New Rochelle, N. Y., Feb. 24, aged 56; managing editor of the *Century Dictionary*.

SMITH, Sylvester Clark, Bakersfield, Cal., Jan. 26, aged 55; Representative in Congress from California, 1905-13.

SNOW, Edward Taylor, Philadelphia, Sept. 26; aged 73; artist.

SNYDER, Simon, Reading, Pa., April 13, aged 75; Brigadier-General, U. S. A., retired.

SPEAR, William Thomas, Columbus, O., Dec. 8, aged 79; chief justice of the Supreme Court of Ohio, 1892-98.

SPIEKER, George Frederick, Philadelphia, Sept. 7, aged 68; theologian, professor of church history in the Lutheran Theological Seminary, Philadelphia.

STAUFFER, David McNeely Knox, Yonkers, Feb. 5, aged 67; engineer.

STINESS, John Henry, Providence, R. I., Sept. 6, aged 73; jurist, chief justice of the Supreme Court of Rhode Island, 1900-04.

STOKES, Anson Phelps, New York, June 28, aged 75; banker.

SULLIVAN, Timothy D., New York, Aug. 31, aged 60; Representative in Congress from New York, 1903-07 and 1913.

SWIFT, Lewis, Binghamton, N. Y., Jan. 5, aged 93; astronomer.

TAYLOR, William Watts, Cincinnati, Nov. 12, aged 67; manufacturer.

THWAITES, Reuben Gold, Madison, Wis., Oct. 22, aged 60; historian.

TITUS, Bennett Eaton, Danvers, Mass., Nov. 29, aged 53; editor of Methodist publications.

UHLER, Philip Reese, Baltimore, Oct. 21, aged 78; librarian of the Peabody Library, Baltimore.

UNDERWOOD, John Cox, New York, Oct. 26, aged 73; engineer, Confederate veteran.

WAIT, Lucien Augustus, Clifton Springs, N. Y., Sept. 6, aged 67; professor emeritus of mathematics in Cornell University.

WAKEMAN, Thaddeus Burr, Cos Cob, Conn., April 23, aged 78; author.

WARD, A. Montgomery, Chicago, Dec. 7, aged 70; merchant.

WARD, Lester Frank, Washington, April 18, aged 71; geologist and sociologist.

WARWICK, Charles Franklin, Philadelphia, April 4, aged 61; mayor of Philadelphia, 1895-99.

WEDEMEYER, William Walter, drowned at sea, Jan. 2, aged 39; Representative in Congress from Michigan, 1911-13.

WEEMS, Capel Lyon, St. Clairsville, O., Jan. 5, aged 52; Representative in Congress from Ohio, 1903-09.

WHITE, Frank Russell, Manila, P. I., Aug. 17, aged 38; Director of Education of the Philippine Insular Government.

WILDER, William Henry, Washington, Sept. 11, aged 58; Representative in Congress from Massachusetts since 1911.

WILLIAMS, Samuel W., Vincennes, Ind., Aug. 5, aged 62; Populist candidate for Vice-President, 1908.

WILSON, Charles Irving, New York, Sept. 22, aged 76; Brigadier-General, U. S. A., retired.

WILSON, Harry Langford, Pittsburgh, Feb. 23, aged 45; professor of Roman archæology and epigraphy in Johns Hopkins University.

WINDMÜLLER, Louis, New York, Oct. 1, aged 78; merchant and financier.

WISE, John Sergeant, Princess Anne, Md., May 12, aged 66; Representative in Congress from Virginia, 1883-85.

WOODFORD, Stewart Lyndon, New York, Feb. 14, aged 77; minister to Spain, 1897-98.

WOODRUFF, Carle Augustus, Raleigh, N. C., July 20, aged 72; Brigadier-General, U. S. A., retired.

WOODRUFF, Timothy Lester, New York, Oct. 12, aged 55; Lieutenant-Governor of New York, 1897-1903.

ZUNSER, Eliakum, New York, Sept. 22, aged 77; Yiddish poet.

FOREIGN NECROLOGY

AMATEIS, Louis, Washington, March 18, aged 57; sculptor.

ANDRÉ, Louis Joseph Nicolas, Dijon, France, March 18, aged 74; former Minister of War of France.

ARANJO, Manuel E., San Salvador, Feb. 9; President of Salvador.

ARROL, (Sir) William, Seafield, Scotland, Feb. 20, aged 73; engineer and bridge builder.

AUGUSTE, Tancrede, Port-au-Prince, Haiti, May 2; President of Haiti.

AUSTIN, Alfred, Ashford, England, June 2, aged 78; Poet Laureate of Great Britain, 1896-1913.

AVEBURY, (Sir) John Lubbock, Baron,

London, May 28, aged 79; naturalist, author, and statesman.

BARRY, Redmond, Dublin, July 11, aged 47; Lord Chancellor of Ireland.

BALL, (Sir) Robert Stawell, London, Nov. 25, aged 73; astronomer.

BARNETT, (Canon) Samuel Augustus, London, June 17, aged 69; clergyman and social reformer.

BARREIRO, Juan Bautista Hernandez, Havana, Dec. 12; president of the Supreme Court of Cuba.

BEBEL, August Ferdinand, Zurich, Aug. 13, aged 73; leader of the Social Democratic party in the German Reichstag.

BONILLA, Manuel, Tegucigalpa, Honduras, March 21; President of Honduras.

BOUTET DE MONVEL, Louis Maurice, Paris, March 16, aged 63; painter and illustrator.

CAMPOS-SALLES, Manuel Ferraz de, Sao Paulo, Brazil, June 28, aged 73; President of Brazil, 1898-1902.

CARBO, Luis Felipe, New York, Feb. 25, aged 55; former minister to the U. S. from Ecuador.

CARRIERE-BELLEUSE, Robert Louis, Paris, June 15, aged 65; painter and sculptor.

CONSTANS, Jean Ernest, Paris, April 7, aged 79; former Premier of France.

CRAWFORD, James Ludovic Lindsay, Earl of, London, Jan 31, aged 65; scientist and philatelist.

DE FOVILLE, Alfred, Paris, May 14, aged 70; economist.

DELBRUECK, Ludwig, Berlin, March 13, financial adviser to the Emperor of Germany.

DIESEL, Rudolf, at sea, Sept. 29, inventor.

DOUGLAS, (Sir) Archibalt Lucius, Newnham, England, March 13, aged 71; Admiral in the British Navy and former Lord of the Admiralty.

DOWDEN, Edward, Dublin, April 4, aged 69; professor of English literature in the University of Dublin.

DUBOIS, Theodore, Rheims, France, Oct. 21, aged 76; composer.

EAST, (Sir) Alfred, London, Sept. 28, aged 63; president of the Royal Society of British Artists.

ELLIS, Robinson, London, Oct. 9, aged 79; professor of Latin Literature in Oxford University.

FAVA, (Baron) Saverio, Rome, Oct. 3, aged 81; ambassador to the U. S. from Italy, 1881-91.

FRANSEN, Rudolf, Oldenburg, Germany, Feb. 13, aged 49; German consul general at New York, 1909-12.

GAUL, Robert Alfred, London, Sept., aged 76; composer.

GORELL, John Gorell Barnes, Baron, London, April 22, aged 64; jurist.

HAMILTON, Angus, New York, June 14; war correspondent and author.

HAYSHI, (Viscount) Tadasu, Tokio, July 10, aged 63; diplomatist and statesman.

HAZLITT, William Carew, London, Sept. 8, aged 79; author and numismatist.

HENRY XIV, Prince of Reuss, Gera, Germany, March 29, aged 80.

HOLLEBEN, Theodor von, Berlin, Feb. 1, aged 74; ambassador to the U. S. from Germany, 1897-1903.

IRVING, (Sir) Aemilius, Toronto, Nov. 27, aged 90; Canadian lawyer.

JOHNSON, Emily Pauline, Vancouver, B. C., March 7; Indian poetess.

KATSURA, (Prince) Taro, Tokio, Oct. 10, aged 66; Japanese soldier and statesman.

KRAG, Thomas, Christiania, March 14; Norwegian novelist.

LLANDAFF, Henry Matthews, Viscount, London, April 3, aged 87; British Home Secretary, 1886-92

LYTTELTON, Alfred, London, July 4, aged 56; British Colonial Secretary, 1903-05.

MACNAGHTEN, Edward, Baron, London, Feb. 17, aged 82; jurist.

MACHIN, José, Paris, Sept. 13; former minister to the U. S. from Paraguay.

MADERO, Francisco I., Mexico City, Feb. 22; President of Mexico, 1911-13.

MARCHESI, Mathilde, London, Nov. 18; teacher of singing.

MAYBRICK, Michael ("Stephen Adams"), Buxton, England, Aug. 26, aged 69; composer.

MENDONCA, Salvador de, Rio Janeiro, Dec. 6, aged 72; minister from Brazil to the United States, 1891-98.

MILNE, John, Newport, Isle of Wight, July 31, aged 63; seismologist.

MORET Y PRENDERGAST, Sigismundo, Madrid, Jan. 28, aged 74; former Premier of Spain.

NAZIM PASHA, Constantinople, Jan. 23; War Minister and Commander-in-Chief of the Turkish armies.

NESTLE, Christof Eberhard, Maulbronn, Germany, April 3, aged 62; professor in the Evangelical Theological Seminary; author.

OLLIVIER, Emile, Annecy, France, Aug. 20, aged 88; Premier of France during the Franco-American War.

OREGLIA, (di Santo Stefano), Luigi, Rome, Dec. 5, aged 85; Cardinal.

ORR, James, Glasgow, Sept. 6, aged 69; theologian.

PICARD, Alfred Maurice, Paris, March 8, aged 69; French engineer, financier, and statesman.

PIEROLA, Nicholas, Lima, Peru, June 24, aged 73; President of Peru, 1896-99.

PREECE, (Sir) William Henry, London, Nov. 6, aged 79; engineer.

QUARITCH, Bernard, Brighton, England, Aug. 27; publisher and dealer in rare books.

RESPIGHI, Peter, Rome, Italy, March 22, aged 69; Cardinal, Vicar-General of the Pope.

REYES, Bernardo, Mexico City; Feb. 9, aged 62; Mexican Minister of War under President Diaz.

ROCHEFORT, Victor Henri de, Aix-les-Bains, France, July 1, aged 83; French journalist and politician.

ROSS, James, Montreal, Sept. 20, aged 65; Canadian financier.

SCOTT (Sir) Richard William, Ottawa, Canada, April 23, aged 88; Secretary of State of Canada, 1896-1908.

SHEVKET PASHA, Mahmoud, Constantinople, June 11; Grand Vizier of Turkey.

SLABY, Adolf, Berlin, April 6, aged 63; inventor of the Telefunken system of wireless telegraphy.

SOLOMON, (Sir) Richard, London, Nov. 10, aged 63; High Commissioner in London for South Africa.

SPRIGG, (Sir) John Gordon, Cape Town, Feb. 4, aged 83; former Premier of Cape Colony.

SUAREZ, Jose Pino, Mexico City, Feb. 22; Vice-President of Mexico, 1911-13.

SUTHERLAND, Cromartie Sutherland-Leveson-Gower, Duke of, Dunrobin Castle, Scotland, June 26, aged 62.

THUREAU-DANGIN, Paul Marie Pierre, Paris, Feb. 24, aged 76; secretary of the French Academy.

TINWORTH, George, London, Sept. 11, aged 69; modeler in clay.

VAMBERG, Arminius, Budapest, Hungary, Sept. 15, aged 81; orientalist.

VIVES Y TUTO, Joseph Calasanctius, Rome, Sept. 7, aged 59; Cardinal, Prefect of the Congregation for Religious Affairs.

WALLACE Alfred Russel, London, Nov. 7, aged 90; scientist.

WESTLAKE, John, London, April 14, aged 85; professor of international law in Cambridge University, 1888-1908.

WHITE, William Hale ("Mark Rutherford"), Groombridge, England, March 15, aged 84; author.

WHITE, (Sir) William Henry, London, Feb. 27, aged 68; former chief constructor of the British Navy.

WOLSELEY, Garnet Joseph, Viscount, Mentone, France, March 25, aged 79; former Commander-in-Chief of the British Army.

WYNDHAM, George, Paris, June 9, aged 49; Chief Secretary for Ireland, 1900-05.

YE HO NA LA, Peking, China, Feb. 22; Dowager Empress of China.

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